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Section II – Soil and Site Information

**County specific computer generated reports.*

ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Wallace County, Kansas: Published

Map symbol	Soil name	Acres	Percent
063GB	Glenberg, Rarely Flooded-Bankard, Occasionally Flooded, Complex, 0 To 3 Percent Slopes	192	*
063KM	Kimst Loam, 1 To 5 Percent Slopes	1,168	0.2
063KR	Kuma-Keith Silt Loams, 0 To 2 Percent Slopes	64	*
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181UC	Ulysses Silt Loam, 6 To 10 Percent Slopes	570	*
181UD	Ulysses-Colby Silt Loams, 1 To 3 Percent Slopes, Eroded	1	*
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Bc	Bankard Sandy Loam, Rarely Flooded	5,301	0.9
Bo	Bridgeport Loam, Occasionally Flooded	8,150	1.4
Bp	Bridgeport Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded	12,808	2.2
Br	Bridgeport Silt Loam, 2 To 6 Percent Slopes	2,997	0.5
Bs	Bridgeport-Arvada Complex, Rarely Flooded	2,873	0.5
Cd	Canyon Loam, 5 To 30 Percent Slopes	7,019	1.2
Ch	Caruso Loam, Occasionally Flooded	5,736	1.0
Co	Colby Silt Loam, 3 To 6 Percent Slopes	50,043	8.6
COC	Colby Silt Loam, 3 To 5 Percent Slopes	1,227	0.2
Cp	Colby Silt Loam, 6 To 15 Percent Slopes	38,327	6.6
Ec	Elkader Silt Loam, 2 To 6 Percent Slopes	757	0.1
Gb	Glenberg Sandy Loam, Rarely Flooded	913	0.2
Go	Goshen Silt Loam, 0 To 3 Percent Slopes, Rarely Flooded	12,950	2.2
Ke	Keith Silt Loam, 0 To 1 Percent Slopes	71,892	12.3
Ko	Kim-Otero Complex, 5 To 20 Percent Slopes	25,624	4.4
Ku	Kuma Silt Loam, 0 To 1 Percent Slopes	13,132	2.2
Lm	Limon Silty Clay, 0 To 2 Percent Slopes	720	0.1
Mc	Manter Fine Sandy Loam, 2 To 5 Percent Slopes	3,263	0.6
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Po	Pleasant Silty Clay Loam, 0 To 1 Percent Slopes	1,840	0.3
Rc	Razor Clay, 1 To 6 Percent Slopes	2,426	0.4
Sc	Satanta Loam, 1 To 3 Percent Slopes	5,398	0.9
Se	Sweetwater Clay Loam, Occasionally Flooded	2,062	0.4
Ua	Ulysses Silt Loam, 0 To 1 Percent Slopes	52,897	9.0
Ub	Ulysses Silt Loam, 1 To 3 Percent Slopes	171,956	29.4
Uc	Ulysses Silt Loam, 3 To 6 Percent Slopes	57,404	9.8
Us	Ulysses-Colby Complex, 1 To 4 Percent Slopes	5,087	0.9
W	Water	23	*
	Total	584,698	100.0

* Less than 0.1 percent.

NONTECHNICAL SOIL DESCRIPTIONS
Wallace County, Kansas

Nontechnical soil descriptions describe soil properties or management considerations specific to a soil map unit or group of map units, shown in the NonTechnical Descriptions report. These descriptions are written in terminology that Non-technical users of soil survey information can understand.
Nontechnical soil descriptions are a powerful tool for creating reports. These high quality, easy to read reports can be generated by conservation planners and other NRCS employees for distribution to land users. Soil map unit descriptions and National Soil Information System records are the basis for these descriptions.

063GB Glenberg, Rarely Flooded-Bankard, Occasionally Flooded, Complex, 0 To 3 Percent Slopes

Glenberg soil makes up 50 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain. The runoff class is very low. The parent material consists of coarse-loamy alluvium. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Sandy Bottomland range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Bankard soil makes up 30 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a low available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Bottomland range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 6s.

063KM Kimst Loam, 1 To 5 Percent Slopes

Kimst soil makes up 85 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping hill on upland. The runoff class is low. The parent material consists of fine-loamy eolian deposits over fine-loamy alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Loamy Plains range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

063KR Kuma-Keith Silt Loams, 0 To 2 Percent Slopes

Kuma soil makes up 45 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping plain on upland. The runoff class is low. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Plains range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2c.

Keith soil makes up 30 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping plain. The runoff class is low. The parent material consists of fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Plains range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2c.

109EB Elkader Silt Loam, 1 To 3 Percent Slopes

Elkader soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping fan on upland. The runoff class is low. The parent material consists of calcareous silty residuum weathered from chalk. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 50 percent calcium carbonate. This soil contains a moderately saline horizon, This soil is in the Limy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 2e.

109EC Elkader Silt Loam, 3 To 5 Percent Slopes

Elkader soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is low. The parent material consists of calcareous silty residuum weathered from chalk. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 50 percent calcium carbonate. This soil contains a moderately saline horizon, This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 3e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Wallace County, Kansas

181RH Kim-Otero Complex, 6 To 25 Percent Slopes

Kim soil makes up 70 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of alluvium and/or eolian deposits derived from sandstone and shale. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 6e.

Otero soil makes up 30 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep summit hillslope on upland. The runoff class is low. The parent material consists of coarse-loamy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Sandy (pe16-20) range site. This soil is in the irrigated land capability class 6e. It is in the nonirrigated land capability classification 6e.

181UC Ulysses Silt Loam, 6 To 10 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to strongly sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 6e.

181UD Ulysses-Colby Silt Loams, 1 To 3 Percent Slopes, Eroded

Ulysses soil makes up 60 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping ridge on upland. The runoff class is low. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Colby soil makes up 40 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping knoll on upland. The runoff class is low. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Bb Bankard Loamy Sand, Occasionally Flooded

Bankard soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is negligible. The parent material consists of sandy alluvium. This soil is somewhat excessively drained. The slowest permeability is rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sands (pe16-20) range site. This soil is in the irrigated land capability class 4w. It is in the nonirrigated land capability classification 6w.

Bc Bankard Sandy Loam, Rarely Flooded

Bankard soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is very low. The parent material consists of sandy alluvium. This soil is somewhat excessively drained. The slowest permeability is moderately rapid. It has a low available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe16-20) range site. This soil is in the irrigated land capability class 4w. It is in the nonirrigated land capability classification 4w.

Bo Bridgeport Loam, Occasionally Flooded

Bridgeport soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Lowland (pe16-20) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 2w.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Wallace County, Kansas

Bp Bridgeport Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded

Bridgeport soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on alluvial plain. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Terrace (pe20-26) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 2c.

Br Bridgeport Silt Loam, 2 To 6 Percent Slopes

Bridgeport soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping alluvial fan on alluvial plain. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Terrace (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 3e.

Bs Bridgeport-Arvada Complex, Rarely Flooded

Bridgeport soil makes up 55 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of calcareous fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Terrace (pe16-20) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3c.

Arvada soil makes up 45 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on alluvial plain. The runoff class is low. The parent material consists of alluvium. This soil is well drained. The slowest permeability is very slow. It has a low available water capacity and a high shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil contains a moderately saline horizon, This soil is in the Saline Lowland (pe16-20) range site. It is in the nonirrigated land capability classification 7.

Cd Canyon Loam, 5 To 30 Percent Slopes

Canyon soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to steep hillslope on upland. The runoff class is high. The parent material consists of calcareous loamy residuum weathered from limestone and sandstone. The soil is 6 to 20 inches deep to bedrock (paralithic). This soil is somewhat excessively drained. The slowest permeability is moderate. It has a very low available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 40 percent calcium carbonate. This soil is in the Shallow Limy (pe16-20) range site. It is in the nonirrigated land capability classification 6s.

Ch Caruso Loam, Occasionally Flooded

Caruso soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping flood plain on river valley. The runoff class is low. The parent material consists of fine-loamy alluvium. This soil is somewhat poorly drained. The slowest permeability is moderately slow. It has a high available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 30 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Subirrigated (pe16-20) range site. This soil is in the irrigated land capability class 2w. It is in the nonirrigated land capability classification 3w.

Co Colby Silt Loam, 3 To 6 Percent Slopes

Colby soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 6e.

COC Colby Silt Loam, 3 To 5 Percent Slopes

Colby soil makes up 85 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping hill on plains. The runoff class is low. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Plains range site. This soil is in the irrigated land capability class 4e. It is in the nonirrigated land capability classification 4e.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Wallace County, Kansas

Cp Colby Silt Loam, 6 To 15 Percent Slopes

Colby soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 6e.

Ec Elkader Silt Loam, 2 To 6 Percent Slopes

Elkader soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping fan on upland. The runoff class is low. The parent material consists of calcareous silty residuum weathered from chalk. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 50 percent calcium carbonate. This soil contains a moderately saline horizon, This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 3e.

Gb Glenberg Sandy Loam, Rarely Flooded

Glenberg soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is very low. The parent material consists of calcareous coarse-loamy alluvium. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy Terrace (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Go Goshen Silt Loam, 0 To 3 Percent Slopes, Rarely Flooded

Goshen soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping drainageway on upland, swale on upland. The runoff class is low. The parent material consists of fine-silty alluvium. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Terrace (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3c.

Ke Keith Silt Loam, 0 To 1 Percent Slopes

Keith soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level plain on upland. The runoff class is low. The parent material consists of fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3c.

Ko Kim-Otero Complex, 5 To 20 Percent Slopes

Kim soil makes up 70 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is medium. The parent material consists of alluvium and/or eolian deposits derived from sandstone and shale. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Limy Upland (pe16-20) range site. It is in the nonirrigated land capability classification 6e.

Otero soil makes up 30 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep summit hillslope on upland. The runoff class is low. The parent material consists of coarse-loamy eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a very slightly saline horizon, This soil is in the Sandy (pe16-20) range site. This soil is in the irrigated land capability class 6e. It is in the nonirrigated land capability classification 6e.

Ku Kuma Silt Loam, 0 To 1 Percent Slopes

Kuma soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level flat on upland. The runoff class is low. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3c.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Wallace County, Kansas

Lm Limon Silty Clay, 0 To 2 Percent Slopes

Limon soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level to gently sloping terrace on river valley. The runoff class is medium. The parent material consists of clayey alluvium derived from clayey shale. This soil is well drained. The slowest permeability is slow. It has a moderate available water capacity and a high shrink swell potential. This soil is rarely flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a slightly saline horizon, This soil is in the Clay Terrace (pe16-20) range site. This soil is in the irrigated land capability class 3s. It is in the nonirrigated land capability classification 6s.

Mc Manter Fine Sandy Loam, 2 To 5 Percent Slopes

Manter soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping plain on upland. The runoff class is very low. The parent material consists of calcareous alluvium and/or calcareous eolian deposits. This soil is well drained. The slowest permeability is moderately rapid. It has a moderate available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Sandy (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Mh Midway Clay, 5 To 20 Percent Slopes

Midway soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping to moderately steep hillslope on upland. The runoff class is very high. The parent material consists of calcareous residuum weathered from calcareous shale. The soil is 6 to 20 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is slow. It has a very low available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 5 percent calcium carbonate. This soil contains a slightly saline horizon, This soil is in the Shale Breaks (pe16-20) range site. This soil is in the irrigated land capability class 6e. It is in the nonirrigated land capability classification 6e.

Po Pleasant Silty Clay Loam, 0 To 1 Percent Slopes

Pleasant soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level playa on upland. The runoff class is negligible. The parent material consists of clayey alluvium and/or eolian deposits. This soil is poorly drained. The slowest permeability is very slow. It has a high available water capacity and a high shrink swell potential. This soil is not flooded and is occasional ponded. The top of the seasonal high water table is at 0 inches. The soil contains a maximum amount of 2 percent calcium carbonate. This soil is in the Clay Upland (pe16-20) range site. It is in the nonirrigated land capability classification 4w.

Rc Razor Clay, 1 To 6 Percent Slopes

Razor soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping hillslope on upland. The runoff class is high. The parent material consists of residuum weathered from calcareous shale. The soil is 20 to 40 inches deep to bedrock (paralithic). This soil is well drained. The slowest permeability is slow. It has a low available water capacity and a high shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil contains a moderately saline horizon, it has a horizon that is moderately sodic. This soil is in the Clay Upland (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 6e.

Sc Satanta Loam, 1 To 3 Percent Slopes

Satanta soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping paleoterrace on upland, ridge on upland. The runoff class is low. The parent material consists of fine-loamy eolian deposits over fine-loamy alluvium. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 10 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Se Sweetwater Clay Loam, Occasionally Flooded

Sweetwater soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level flood plain on river valley. The runoff class is low. The parent material consists of fine-loamy alluvium over sandy alluvium. This soil is poorly drained. The slowest permeability is moderately slow. It has a moderate available water capacity and a low shrink swell potential. This soil is occasionally flooded and is not ponded. The top of the seasonal high water table is at 21 inches. The soil contains a maximum amount of 5 percent calcium carbonate. This soil is in the Subirrigated (pe16-20) range site. It is in the nonirrigated land capability classification 5w.

NONTECHNICAL SOIL DESCRIPTIONS--Continued
Wallace County, Kansas

Ua Ulysses Silt Loam, 0 To 1 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a nearly level ridge on upland. The runoff class is low. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 1 It is in the nonirrigated land capability classification 3c.

Ub Ulysses Silt Loam, 1 To 3 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping plain on tableland. The runoff class is low. The parent material consists of loess. This soil is well drained. The slowest permeability is moderate. It has a high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Uc Ulysses Silt Loam, 3 To 6 Percent Slopes

Ulysses soil makes up 100 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a moderately sloping hillslope on upland. The runoff class is medium. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

Us Ulysses-Colby Complex, 1 To 4 Percent Slopes

Ulysses soil makes up 65 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping ridge on upland. The runoff class is low. The parent material consists of fine-silty calcareous loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a moderate shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Loamy Upland (pe16-20) range site. This soil is in the irrigated land capability class 2e. It is in the nonirrigated land capability classification 3e.

Colby soil makes up 35 percent of the map unit. This map unit is in the Central High Tableland Major Land Resource Area. This soil occurs on a gently sloping to moderately sloping plain on upland. The runoff class is low. The parent material consists of calcareous fine-silty loess. This soil is well drained. The slowest permeability is moderate. It has a very high available water capacity and a low shrink swell potential. This soil is not flooded and is not ponded. The seasonal high water table is at a depth of more than 6 feet. The soil contains a maximum amount of 15 percent calcium carbonate. This soil is in the Limy Upland (pe16-20) range site. This soil is in the irrigated land capability class 3e. It is in the nonirrigated land capability classification 4e.

063GB—Glenberg, rarely flooded-Bankard, occasionally flooded, complex, 0 to 3 percent slopes

Mapunit Information: This map unit is on flood plains. It formed in alluvium. The native vegetation is mainly grasses and sagebrush.

Map Unit Composition

Glenberg: 50 percent
Bankard: 30 percent
Minor components: 20 percent

Component Descriptions

Glenberg
MLRA: 72 - Central High Tableland
Landform: Flood plain
Parent material: Coarse-loamy alluvium
Slope: 0 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 1.98 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy Bottomland
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:
A—0 to 4 inches; fine sandy loam
AC—4 to 13 inches; fine sandy loam
C1—13 to 21 inches; sandy loam
C2—21 to 60 inches; loamy sand

Bankard
MLRA: 72 - Central High Tableland
Landform: Flood plain
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Low (About 4.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sandy Bottomland
Land capability (irrigated): 3e
Land capability (nonirrigated): 6s

Typical Profile:
A—0 to 4 inches; loamy sand
C—4 to 60 inches; sand

Minor Components
Sampson
Composition: About 10 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Overflow

Haverson
Composition: About 5 percent
Slope: 0 to 1 percent
Drainage class: Well drained
Ecological site: Overflow

Paoli
Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Sandy Plains

General Considerations: irrigated cropland and rangeland.
The main limitations for irrigated crops are droughtiness, active channels, the hazard of soil blowing, and fast intake rate in the Bankard soils. Maintaining border strips and restricting machinery helps stabilize banks and channels. Because the water intake rate is rapid in the Bankard soil, sprinkler irrigation is best suited to this unit. Location of channels may restrict irrigation methods. To avoid over irrigating and leaching plant nutrients, applications of irrigation water should be adjusted to the available water capacity, the water intake rate, and the crop needs. Tillage should be kept to a minimum. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.
Controlled livestock management is a practice that is needed on this unit. Brush management may also be needed.
The main limitations for windbreaks and environmental plantings are droughtiness, the hazard of soil blowing, lime-induced chlorosis, and flooding. Fabricated mulches allow soil protection by reducing the amount of land cultivated. Chem fallow, cultivation for weed control, and selection of adapted plants help to

ensure the establishment and survival of seedlings. The hazard of soil blowing can be reduced by cultivating only in the tree rows and by leaving a strip of vegetation between the rows. Shrubs and trees that are not sensitive to lime-induced chlorosis are suited to use in windbreaks. Dikes and channels that have outlets for floodwater should be used to protect windbreaks from flooding.
This unit is not suited for homesite development due to flooding.

063KM—Kimst loam, 1 to 5 percent slopes

Mapunit Information: This very deep, well drained soil is on nearly level and gently sloping plains. It formed in eolian material over alluvium. The native vegetation is mainly grasses.

Map Unit Composition

Kimst: 85 percent
Minor components: 15 percent

Component Descriptions

Kimst
MLRA: 72 - Central High Tableland
Landform: Hill on upland
Parent material: Fine-loamy eolian deposits over fine-loamy alluvium
Slope: 1 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Plains
Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical Profile:
A—0 to 6 inches; loam
AC—6 to 12 inches; loam
C—12 to 60 inches; loam

Minor Components
Stoneham
Composition: About 5 percent
Slope: 3 to 5 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Otero
Composition: About 5 percent
Geomorphic Position: hillslope on upland
Slope: 1 to 6 percent
Drainage class: Well drained
Ecological site: Sandy Plains

Fort Collins
Composition: About 4 percent
Geomorphic Position: plain
Slope: 3 to 5 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Lodgepole
Composition: About 1 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations: nonirrigated cropland and rangeland.
The main limitations for nonirrigated crops are low precipitation, low organic matter, low fertility, lime-induced chlorosis, and the hazards of soil blowing and water erosion. Because precipitation is not sufficient for annual cropping, a cropping system that includes small grain and summer fallow is most suitable. Tillage should be kept to a minimum. Terraces reduce runoff and the risk of erosion and help to conserve moisture. Areas that have smooth slopes can be terraced and then farmed on the contour.
Lime that causes lime-induced chlorosis decreases the available supply of most nutrients in the Kimst and Otero soils. Chlorosis is apparent, particularly in beans and grain sorghum. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, reduces the hazard of water soil blowing, and increases the water intake rate.
Controlled livestock management is the major practice needed on this map unit.
The main limitations or windbreaks and environmental plantings are low precipitation, lime-induced chlorosis, the hazard of soil blowing. Planting on the contour conserves moisture. Shrubs and trees that are not sensitive

to lime-induced chlorosis are suited to use in windbreaks.

063KR—Kuma-Keith silt loams, 0 to 2 percent slopes

Mapunit Information: This map unit is on nearly level plains. The native vegetation is mainly grasses.

Map Unit Composition

Kuma: 45 percent
Keith: 30 percent
Minor components: 25 percent

Component Descriptions

Kuma
MLRA: 72 - Central High Tableland
Landform: Plain on upland
Parent material: Calcareous fine-silty loess
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.57 in/hr)
Available water capacity: High (About 10.4 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Plains
Land capability (irrigated): 2e
Land capability (nonirrigated): 2c

Typical Profile:
A—0 to 5 inches; silt loam
BAt—5 to 9 inches; silty clay loam
Bt1—9 to 16 inches; silty clay loam
Bt2—16 to 19 inches; silty clay loam
Btkb1—19 to 24 inches; silty clay loam
Btkb2—24 to 34 inches; silty clay loam
Btkb3—34 to 43 inches; silt loam
Bkb1—43 to 56 inches; silt loam
Bkb2—56 to 61 inches; silt loam

Keith
MLRA: 72 - Central High Tableland
Landform: Plain
Parent material: Fine-silty loess
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.7 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Plains
Land capability (irrigated): 2e
Land capability (nonirrigated): 2c

Typical Profile:
A—0 to 6 inches; silt loam
Bt1—6 to 9 inches; silt loam
Bt2—9 to 17 inches; silty clay loam
Btk—17 to 24 inches; silty clay loam
Bk1—24 to 34 inches; silt loam
Bk2—34 to 41 inches; silt loam
Bk3—41 to 47 inches; silt loam
C—47 to 60 inches; silt loam

Minor Components
Richfield
Composition: About 10 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Norka
Composition: About 5 percent
Slope: 0 to 3 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Goshen
Composition: About 5 percent
Slope: 0 to 2 percent
Drainage class: Well drained
Ecological site: Overflow

Pleasant
Composition: About 4 percent
Slope: 0 to 1 percent
Drainage class: Moderately well drained
Ecological site: Plains Swale

Lodgepole
Composition: About 1 percent
Slope: 0 to 1 percent
Drainage class: Somewhat poorly drained

General Considerations: nonirrigated cropland, irrigated cropland, and rangeland.

The main limitation for nonirrigated and irrigated crops is the hazard of soil blowing. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.
This map unit is very productive.
Controlled livestock management is the major practice needed on this map unit.
The main limitation for windbreaks and environmental plantings is the hazard of soil blowing.

109EB—Elkader silt loam, 1 to 3 percent slopes

Map Unit Composition

Elkader: 100 percent

Component Descriptions

Elkader
MLRA: 72 - Central High Tableland
Landform: Fan on upland
Parent material: Calcareous silty residuum weathered from chalk
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 2e

Typical Profile:
H1—0 to 15 inches; silt loam
H2—15 to 23 inches; silt loam
H3—23 to 60 inches; silt loam

109EC—Elkader silt loam, 3 to 5 percent slopes

Map Unit Composition

Elkader: 100 percent

Component Descriptions

Elkader
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Calcareous silty residuum weathered from chalk
Slope: 3 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 15 inches; silt loam
H2—15 to 23 inches; silt loam
H3—23 to 60 inches; silt loam

181RH—Kim-Otero complex, 6 to 25 percent slopes

Map Unit Composition

Kim: 70 percent
Otero: 30 percent

Component Descriptions

Kim
MLRA: 72 - Central High Tableland,72 - Central High Tableland
Landform: Hillslope on upland

Parent material: Alluvium and/or eolian deposits derived from sandstone and shale
Slope: 5 to 20 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 9.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 6 inches; loam
H2—6 to 60 inches; clay loam

Otero
MLRA: 72 - Central High Tableland,72 - Central High Tableland
Landform: Hillslope on upland
Hillslope position: Summit
Parent material: Coarse-loamy eolian deposits
Slope: 5 to 20 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy (pe16-20)
Land capability (irrigated): 6e
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 5 inches; sandy loam
H2—5 to 60 inches; sandy loam

181UC—Ulysses silt loam, 6 to 10 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Fine-silty calcareous loess
Slope: 6 to 10 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe16-20)
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 30 inches; silt loam
H3—30 to 60 inches; silt loam

181UD—Ulysses-Colby silt loams, 1 to 3 percent slopes, eroded

Map Unit Composition

Ulysses: 60 percent
Colby: 40 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Ridge on upland
Parent material: Fine-silty calcareous loess
Slope: 1 to 3 percent

Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 11 inches; silt loam
H2—11 to 20 inches; silt loam
H3—20 to 60 inches; silt loam

Colby
MLRA: 72 - Central High Tableland
Landform: Knoll on upland
Parent material: Calcareous fine-silty loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 4 inches; silt loam
H2—4 to 60 inches; silt loam

Bb—Bankard loamy sand, occasionally flooded

Map Unit Composition

Bankard: 100 percent

Component Descriptions

Bankard
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Rapid (About 6.00 in/hr)
Available water capacity: Moderate (About 6.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Negligible
Ecological site: Sands (pe16-20)
Land capability (irrigated): 4w
Land capability (nonirrigated): 6w

Typical Profile:
H1—0 to 5 inches; loamy sand
H2—5 to 60 inches; stratified sand

Bc—Bankard sandy loam, rarely flooded

Map Unit Composition

Bankard: 100 percent

Component Descriptions

Bankard
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Sandy alluvium
Slope: 0 to 1 percent
Drainage class: Somewhat excessively drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Low (About 4.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy (pe16-20)
Land capability (irrigated): 4w
Land capability (nonirrigated): 4w

Typical Profile:
H1—0 to 5 inches; sandy loam
H2—5 to 60 inches; sand

Bo—Bridgeport loam, occasionally flooded

Map Unit Composition

Bridgeport: 100 percent

Component Descriptions

Bridgeport
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Calcareous fine-silty alluvium
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Lowland (pe16-20)
Land capability (irrigated): 2w
Land capability (nonirrigated): 2w

Typical Profile:
H1—0 to 16 inches; loam
H2—16 to 60 inches; silt loam

Minor Components
Unnamed Hydric Soils

Bp—Bridgeport silt loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

Bridgeport: 100 percent

Component Descriptions

Bridgeport
MLRA: 72 - Central High Tableland
Landform: Flood plain on alluvial plain
Parent material: Calcareous fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Terrace (pe20-26)
Land capability (irrigated): 1
Land capability (nonirrigated): 2c

Typical Profile:
H1—0 to 13 inches; silt loam
H2—13 to 60 inches; silt loam

Br—Bridgeport silt loam, 2 to 6 percent slopes

Map Unit Composition

Bridgeport: 100 percent

Component Descriptions

Bridgeport
MLRA: 72 - Central High Tableland
Landform: Alluvial fan on alluvial plain
Parent material: Calcareous fine-silty alluvium
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low

Ecological site: Loamy Terrace (pe16-20)
Land capability (irrigated): 3e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 12 inches; silt loam
H2—12 to 60 inches; silt loam

Bs—Bridgeport-Arvada complex, rarely flooded

Map Unit Composition

Bridgeport: 55 percent
Arvada: 45 percent

Component Descriptions

Bridgeport
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Calcareous fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 13.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Terrace (pe16-20)
Land capability (irrigated): 1
Land capability (nonirrigated): 3c

Typical Profile:
H1—0 to 6 inches; silt loam
H2—6 to 60 inches; silt loam

Arvada
MLRA: 72 - Central High Tableland
Landform: Flood plain on alluvial plain
Parent material: Alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: Low (About 5.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Saline Lowland (pe16-20)
Land capability (nonirrigated): 7

Typical Profile:
H1—0 to 2 inches; loam
H2—2 to 22 inches; silty clay loam
H3—22 to 60 inches; silty clay loam

Cd—Canyon loam, 5 to 30 percent slopes

Map Unit Composition

Canyon: 100 percent

Component Descriptions

Canyon
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Calcareous loamy residuum weathered from limestone and sandstone
Slope: 5 to 30 percent
Depth to restrictive feature: 6 to 20 inches to bedrock (paralithic)
Drainage class: Somewhat excessively drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very low (About 2.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Shallow Limy (pe16-20)
Land capability (nonirrigated): 6s

Typical Profile:
H1—0 to 4 inches; loam
H2—4 to 14 inches; gravelly loam
Cr—14 to 14 inches; weathered bedrock

Minor Components
Unnamed Hydric Soils

Ch—Caruso loam, occasionally flooded

Map Unit Composition

Caruso: 100 percent

Component Descriptions

Caruso
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Fine-loamy alluvium
Slope: 0 to 2 percent
Drainage class: Somewhat poorly drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: High (About 11.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 24 to 36 inches
Runoff class: Low
Ecological site: Subirrigated (pe16-20)
Land capability (irrigated): 2w
Land capability (nonirrigated): 3w

Typical Profile:
H1—0 to 16 inches; loam
H2—16 to 60 inches; loam

Minor Components
Sweetwater

Co—Colby silt loam, 3 to 6 percent slopes

Map Unit Composition

Colby: 100 percent

Component Descriptions

Colby
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Calcareous fine-silty loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe16-20)
Land capability (irrigated): 4e
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 5 inches; silt loam
H2—5 to 60 inches; silt loam

COC—Colby silt loam, 3 to 5 percent slopes

Mapunit Information: This very deep, well drained soil is on gently sloping plains. It formed in loess. The native vegetation is mainly grasses.

Map Unit Composition

Colby: 85 percent
Minor components: 15 percent

Component Descriptions

Colby
MLRA: 72 - Central High Tableland
Landform: Hill on plains
Parent material: Calcareous fine-silty loess
Slope: 3 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Plains

Land capability (irrigated): 4e
Land capability (nonirrigated): 4e

Typical Profile:
A—0 to 6 inches; silt loam
AC—6 to 12 inches; silt loam
C1—12 to 30 inches; silt loam
C2—30 to 60 inches; silt loam

Minor Components
Wiley
Composition: About 5 percent
Slope: 3 to 5 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Norka
Composition: About 5 percent
Slope: 3 to 5 percent
Drainage class: Well drained
Ecological site: Loamy Plains

Richfield
Composition: About 5 percent
Slope: 0 to 3 percent
Drainage class: Well drained
Ecological site: Loamy Plains

General Considerations: nonirrigated cropland, irrigated cropland, and rangeland.
The main limitations for nonirrigated and irrigated crops are low precipitation, low organic matter content, low fertility, lime-induced chlorosis, and the hazard of soil blowing. Because precipitation is not sufficient for annual cropping, a cropping system that includes small grain and summer fallow is most suitable for nonirrigated crops. Maintaining crop residue on or near the surface reduces runoff, reduces soil blowing and helps to maintain the soil tilth and organic matter content. All tillage should be on the contour or across the slope. Terraces reduce runoff and the risk of erosion and help to conserve moisture.
Lime that causes lime-induced chlorosis decreases the available supply of most nutrients. Chlorosis is apparent, particularly in beans and grain sorghum. Returning crop residue to the soil or regularly adding other organic matter improves fertility, reduces crusting, reduces the hazard of water erosion and soil blowing, and increases the water intake rate.
Controlled livestock management is the major practice needed on this map unit.
The main limitations for windbreaks and environmental plantings are low precipitation, lime-induced chlorosis, and the hazard of soil blowing. Planting on the contour conserves moisture. Shrubs and trees that are not sensitive to lime-induced chlorosis are suited to use in windbreaks.

Cp—Colby silt loam, 6 to 15 percent slopes

Map Unit Composition

Colby: 100 percent

Component Descriptions

Colby
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Calcareous fine-silty loess
Slope: 6 to 15 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 5 inches; silt loam
H2—5 to 60 inches; silt loam

Ec—Elkader silt loam, 2 to 6 percent slopes

Map Unit Composition

Elkader: 100 percent

Component Descriptions

Elkader
MLRA: 72 - Central High Tableland
Landform: Fan on upland
Parent material: Calcareous silty residuum weathered from chalk
Slope: 2 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.6 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 18 inches; silt loam
H3—18 to 60 inches; silt loam

Gb—Glenberg sandy loam, rarely flooded

Map Unit Composition

Glenberg: 100 percent

Component Descriptions

Glenberg
MLRA: 72 - Central High Tableland
Landform: Terrace on river valley
Parent material: Calcareous coarse-loamy alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.2 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy Terrace (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 30 inches; sandy loam
H2—30 to 60 inches; stratified loamy sand to clay loam

Go—Goshen silt loam, 0 to 3 percent slopes, rarely flooded

Map Unit Composition

Goshen: 100 percent

Component Descriptions

Goshen
MLRA: 72 - Central High Tableland
Landform: Drainageway on upland, swale on upland
Parent material: Fine-silty alluvium
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.1 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Terrace (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3c

Typical Profile:
H1—0 to 16 inches; silt loam
H2—16 to 39 inches; silty clay loam
H3—39 to 60 inches; silt loam

Minor Components
Pleasant

Ke—Keith silt loam, 0 to 1 percent slopes

Map Unit Composition

Keith: 100 percent

Component Descriptions

Keith
MLRA: 72 - Central High Tableland
Landform: Plain on upland
Parent material: Fine-silty loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.3 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 1
Land capability (nonirrigated): 3c

Typical Profile:
H1—0 to 9 inches; silt loam
H2—9 to 24 inches; silty clay loam
H3—24 to 60 inches; silt loam

Minor Components
Pleasant

Ko—Kim-Otero complex, 5 to 20 percent slopes

Map Unit Composition

Kim: 70 percent
Otero: 30 percent

Component Descriptions

Kim
MLRA: 72 - Central High Tableland,72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Alluvium and/or eolian deposits derived from sandstone and shale
Slope: 5 to 20 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 9.5 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Limy Upland (pe16-20)
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 6 inches; loam
H2—6 to 60 inches; clay loam

Otero
MLRA: 72 - Central High Tableland,72 - Central High Tableland
Landform: Hillslope on upland
Hillslope position: Summit
Parent material: Coarse-loamy eolian deposits
Slope: 5 to 20 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 6.0 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Sandy (pe16-20)
Land capability (irrigated): 6e
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 5 inches; sandy loam
H2—5 to 60 inches; sandy loam

Ku—Kuma silt loam, 0 to 1 percent slopes

Map Unit Composition

Kuma: 100 percent

Component Descriptions

Kuma
MLRA: 72 - Central High Tableland
Landform: Flat on upland
Parent material: Calcareous fine-silty loess
Slope: 0 to 1 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.8 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 1
Land capability (nonirrigated): 3c

Typical Profile:
H1—0 to 8 inches; silt loam
H2—8 to 25 inches; silty clay loam
H3—25 to 60 inches; silt loam

Minor Components
Pleasant

Lm—Limon silty clay, 0 to 2 percent slopes

Map Unit Composition

Limon: 100 percent

Component Descriptions

Limon
MLRA: 72 - Central High Tableland
Landform: Terrace on river valley
Parent material: Clayey alluvium derived from clayey shale
Slope: 0 to 2 percent
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Moderate (About 8.3 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: Rare
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Clay Terrace (pe16-20)
Land capability (irrigated): 3s
Land capability (nonirrigated): 6s

Typical Profile:
H1—0 to 4 inches; silty clay
H2—4 to 60 inches; silty clay

Mc—Manter fine sandy loam, 2 to 5 percent slopes

Map Unit Composition

Manter: 100 percent

Component Descriptions

Manter
MLRA: 72 - Central High Tableland
Landform: Plain on upland
Parent material: Calcareous alluvium and/or calcareous eolian deposits
Slope: 2 to 5 percent
Drainage class: Well drained
Slowest permeability: Moderately rapid (About 2.00 in/hr)
Available water capacity: Moderate (About 7.4 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very low
Ecological site: Sandy (pe16-20)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:
H1—0 to 16 inches; fine sandy loam
H2—16 to 36 inches; sandy loam
H3—36 to 60 inches; sandy loam

Mh—Midway clay, 5 to 20 percent slopes

Map Unit Composition

Midway: 100 percent

Component Descriptions

Midway
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Calcareous residuum weathered from calcareous shale
Slope: 5 to 20 percent
Depth to restrictive feature: 6 to 20 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Very low (About 1.9 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Very high
Ecological site: Shale Breaks (pe16-20)
Land capability (irrigated): 6e
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 4 inches; clay
H2—4 to 12 inches; clay
Cr—12 to 12 inches; weathered bedrock

Po—Pleasant silty clay loam, 0 to 1 percent slopes

Map Unit Composition

Pleasant: 100 percent

Component Descriptions

Pleasant
MLRA: 72 - Central High Tableland
Landform: Playa on upland
Parent material: Clayey alluvium and/or eolian deposits
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Very slow (About 0.00 in/hr)
Available water capacity: High (About 10.1 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None
Ponding hazard: Occasional
Depth to seasonal water saturation: About 0 to 0 inches
Runoff class: Negligible
Ecological site: Clay Upland (pe16-20)
Land capability (nonirrigated): 4w

Typical Profile:
H1—0 to 10 inches; silty clay loam
H2—10 to 52 inches; silty clay
H3—52 to 60 inches; silt loam

Rc—Razor clay, 1 to 6 percent slopes

Map Unit Composition

Razor: 100 percent

Component Descriptions

Razor
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Residuum weathered from calcareous shale
Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Drainage class: Well drained
Slowest permeability: Slow (About 0.06 in/hr)
Available water capacity: Low (About 5.4 inches)
Shrink-swell potential: High (About 7.5 LEP)
Flooding hazard: None

Depth to seasonal water saturation: More than 6 feet
Runoff class: High
Ecological site: Clay Upland (pe16-20)
Land capability (irrigated): 3e
Land capability (nonirrigated): 6e

Typical Profile:
H1—0 to 6 inches; clay
H2—6 to 24 inches; clay
H3—24 to 32 inches; clay
Cr—32 to 32 inches; weathered bedrock

Sc—Satanta loam, 1 to 3 percent slopes

Map Unit Composition

Satanta: 100 percent

Component Descriptions

Satanta
MLRA: 72 - Central High Tableland
Landform: Paleoterrace on upland, ridge on upland
Parent material: Fine-loamy eolian deposits over fine-loamy alluvium
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.9 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 12 inches; loam
H2—12 to 22 inches; clay loam
H3—22 to 60 inches; loam

Se—Sweetwater clay loam, occasionally flooded

Map Unit Composition

Sweetwater: 100 percent

Component Descriptions

Sweetwater
MLRA: 72 - Central High Tableland
Landform: Flood plain on river valley
Parent material: Fine-loamy alluvium over sandy alluvium
Slope: 0 to 1 percent
Drainage class: Poorly drained
Slowest permeability: Moderately slow (About 0.20 in/hr)
Available water capacity: Moderate (About 6.8 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: Occasional
Depth to seasonal water saturation: About 6 to 36 inches
Runoff class: Low
Ecological site: Subirrigated (pe16-20)
Land capability (nonirrigated): 5w

Typical Profile:
H1—0 to 24 inches; clay loam
H2—24 to 60 inches; loamy fine sand

Ua—Ulysses silt loam, 0 to 1 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Ridge on upland
Parent material: Fine-silty calcareous loess
Slope: 0 to 1 percent
Drainage class: Well drained

Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 1
Land capability (nonirrigated): 3c

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 19 inches; silt loam
H3—19 to 60 inches; silt loam

Ub—Ulysses silt loam, 1 to 3 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Plain on tableland
Parent material: Loess
Slope: 1 to 3 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 10.7 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 30 inches; silt loam
H3—30 to 52 inches; silt loam

Uc—Ulysses silt loam, 3 to 6 percent slopes

Map Unit Composition

Ulysses: 100 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Hillslope on upland
Parent material: Fine-silty calcareous loess
Slope: 3 to 6 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Medium
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 19 inches; silt loam
H3—19 to 60 inches; silt loam

Us—Ulysses-Colby complex, 1 to 4 percent slopes

Map Unit Composition

Ulysses: 65 percent
Colby: 35 percent

Component Descriptions

Ulysses
MLRA: 72 - Central High Tableland
Landform: Ridge on upland
Parent material: Fine-silty calcareous loess
Slope: 1 to 4 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: Very high (About 12.0 inches)
Shrink-swell potential: Moderate (About 4.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Loamy Upland (pe16-20)
Land capability (irrigated): 2e
Land capability (nonirrigated): 3e

Typical Profile:
H1—0 to 10 inches; silt loam
H2—10 to 19 inches; silt loam
H3—19 to 60 inches; silt loam

Colby
MLRA: 72 - Central High Tableland
Landform: Plain on upland
Parent material: Calcareous fine-silty loess
Slope: 1 to 4 percent
Drainage class: Well drained
Slowest permeability: Moderate (About 0.60 in/hr)
Available water capacity: High (About 11.9 inches)
Shrink-swell potential: Low (About 1.5 LEP)
Flooding hazard: None
Depth to seasonal water saturation: More than 6 feet
Runoff class: Low
Ecological site: Limy Upland (pe16-20)
Land capability (irrigated): 3e
Land capability (nonirrigated): 4e

Typical Profile:
H1—0 to 4 inches; loam
H2—4 to 60 inches; silt loam

W—Water

Farmland Classification
Wallace County, Kansas : Published

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short− and long−range needs for food and fiber. Because the supply of high−quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built−up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in the following table. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in the "Acres and Proportionate Extent of Soils" table. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described in other tables in this document."

Map symbol	Mapunit name	Farmland Classification
Bp	Bridgeport silt loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
063KR	Kuma−keith silt loams, 0 to 2 percent slopes	Prime farmland if irrigated
181UD	Ulysses−colby silt loams, 1 to 3 percent slopes, eroded	Prime farmland if irrigated
Bc	Bankard sandy loam, rarely flooded	Prime farmland if irrigated
Bo	Bridgeport loam, occasionally flooded	Prime farmland if irrigated
Br	Bridgeport silt loam, 2 to 6 percent slopes	Prime farmland if irrigated
Ch	Caruso loam, occasionally flooded	Prime farmland if irrigated
Gb	Glenberg sandy loam, rarely flooded	Prime farmland if irrigated
Go	Goshen silt loam, 0 to 3 percent slopes, rarely flooded	Prime farmland if irrigated
Ke	Keith silt loam, 0 to 1 percent slopes	Prime farmland if irrigated
Ku	Kuma silt loam, 0 to 1 percent slopes	Prime farmland if irrigated
Sc	Satanta loam, 1 to 3 percent slopes	Prime farmland if irrigated
Ua	Ulysses silt loam, 0 to 1 percent slopes	Prime farmland if irrigated
Ub	Ulysses silt loam, 1 to 3 percent slopes	Prime farmland if irrigated
Uc	Ulysses silt loam, 3 to 6 percent slopes	Prime farmland if irrigated
Us	Ulysses−colby complex, 1 to 4 percent slopes	Prime farmland if irrigated

SOIL RATING FOR PLANT GROWTH, modified 1998
Wallace County, Kansas

The "Soil Rating for Plant Growth, modified 1998" (SRPG) is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Map symbol	Soil name	Crop Index
063GB	Glenberg, Rarely Flooded-Bankard, Occasionally Flooded, Complex, 0 To 3 Percent Slopes	31
063KM	Kimst Loam, 1 To 5 Percent Slopes	40
063KR	Kuma-Keith Silt Loams, 0 To 2 Percent Slopes	53
109EB	Elkader Silt Loam, 1 To 3 Percent Slopes	30
109EC	Elkader Silt Loam, 3 To 5 Percent Slopes	29
181RH	Kim-Otero Complex, 6 To 25 Percent Slopes	32
181UC	Ulysses Silt Loam, 6 To 10 Percent Slopes	48
181UD	Ulysses-Colby Silt Loams, 1 To 3 Percent Slopes, Eroded	51
Bb	Bankard Loamy Sand, Occasionally Flooded	22
Bc	Bankard Sandy Loam, Rarely Flooded	23
Bo	Bridgeport Loam, Occasionally Flooded	51
Bp	Bridgeport Silt Loam, 0 To 2 Percent Slopes, Rarely Flooded	54
Br	Bridgeport Silt Loam, 2 To 6 Percent Slopes	52
Bs	Bridgeport-Arvada Complex, Rarely Flooded	40
COC	Colby Silt Loam, 3 To 5 Percent Slopes	41
Cd	Canyon Loam, 5 To 30 Percent Slopes	4
Ch	Caruso Loam, Occasionally Flooded	53
Co	Colby Silt Loam, 3 To 6 Percent Slopes	47
Cp	Colby Silt Loam, 6 To 15 Percent Slopes	42
Ec	Elkader Silt Loam, 2 To 6 Percent Slopes	20
Gb	Glenberg Sandy Loam, Rarely Flooded	31
Go	Goshen Silt Loam, 0 To 3 Percent Slopes, Rarely Flooded	60
Ke	Keith Silt Loam, 0 To 1 Percent Slopes	61
Ko	Kim-Otero Complex, 5 To 20 Percent Slopes	32
Ku	Kuma Silt Loam, 0 To 1 Percent Slopes	59
Lm	Limon Silty Clay, 0 To 2 Percent Slopes	34
Mc	Manter Fine Sandy Loam, 2 To 5 Percent Slopes	42
Mh	Midway Clay, 5 To 20 Percent Slopes	3
Po	Pleasant Silty Clay Loam, 0 To 1 Percent Slopes	4
Rc	Razor Clay, 1 To 6 Percent Slopes	24
Sc	Satanta Loam, 1 To 3 Percent Slopes	60
Se	Sweetwater Clay Loam, Occasionally Flooded	36
Ua	Ulysses Silt Loam, 0 To 1 Percent Slopes	55
Ub	Ulysses Silt Loam, 1 To 3 Percent Slopes	51
Uc	Ulysses Silt Loam, 3 To 6 Percent Slopes	52
Us	Ulysses-Colby Complex, 1 To 4 Percent Slopes	51
W	Water	0

Wallace County, Kansas: Published
Field Office Thunderbook: Soils Properties for Conservation Planning

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "K", "Kf", "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer)

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro-logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								K	Kf	T		
063GB:GLENBERG--	50	3e-	3e	Not prime farmland	B	Sandy Bottomland	3	.28	.28	5	3	86
063GB:BANKARD---	30	3e-	6s	Not prime farmland	A	Sandy Bottomland	2	.20	.20	5	2	134
063KM:KIMST-----	85	4e-	4e	Not prime farmland	B	Loamy Plains	5	.37	.37	5	4L	86
063KR:KUMA------	45	2e-	2c	Prime farmland if irrigated	B	Loamy Plains	7	.37	.37	5	6	48
063KR:KEITH-----	30	2e-	2c	Prime farmland if irrigated	B	Loamy Plains	7	.37	.37	5	6	48
109EB:ELKADER---	100	2e-	2e	Not prime farmland	B	Limy Upland (pe16-20)	5	.32	.32	4	4L	86
109EC:ELKADER---	100	N/A	3e	Not prime farmland	B	Limy Upland (pe16-20)	5	.32	.32	4	4L	86
181RH:KIM-------	70	N/A	6e	Not prime farmland	B	Limy Upland (pe16-20)	5	.32	.32	5	4L	86
181RH:OTERO-----	30	6e-	6e	Not prime farmland	B	Sandy (pe16-20)	3	.24	.24	5	3	86
181UC:ULYSSES---	100	N/A	6e	Not prime farmland	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
181UD:ULYSSES---	60	2e-	3e	Prime farmland if irrigated	B	Limy Upland (pe16-20)	7	.32	.32	5	6	48
181UD:COLBY-----	40	2e-	3e	Prime farmland if irrigated	B	Limy Upland (pe16-20)	5	.43	.43	5	4L	86
Bb:BANKARD------	100	4w-	6w	Not prime farmland	A	Sands (pe16-20)	2	.17	.17	5	2	134
Bc:BANKARD------	100	4w-	4w	Prime farmland if irrigated	A	Sandy (pe16-20)	3	.24	.24	5	3	86
Bo:BRIDGEPORT---	100	2w-	2w	Prime farmland if irrigated	B	Loamy Lowland (pe16-20)	5	.32	.32	5	4L	86
Bp:BRIDGEPORT---	100	1-	2c	All areas are prime farmland	B	Loamy Terrace (pe20-26)	5	.32	.32	5	4L	86
Br:BRIDGEPORT---	100	3e-	3e	Prime farmland if irrigated	B	Loamy Terrace (pe16-20)	5	.32	.32	5	4L	86
Bs:BRIDGEPORT---	55	1-	3c	Not prime farmland	B	Loamy Terrace (pe16-20)	5	.32	.32	5	4L	86

Wallace County, Kansas: Published
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro-logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								K	Kf	T		
Bs:ARVADA-------	45	N/A	7	Not prime farmland	D	Saline Lowland (pe16-20)	5	.32	.32	2	4L	86
COC:COLBY-------	85	4e-	4e	Not prime farmland	B	Loamy Plains	5	.43	.43	5	4L	86
Cd:CANYON-------	100	N/A	6s	Not prime farmland	D	Shallow Limy (pe16-20)	5	.32	.37	2	4L	86
Ch:CARUSO-------	100	2w-	3w	Prime farmland if irrigated	C	Subirrigated (pe16-20)	5	.28	.28	5	4L	86
Co:COLBY--------	100	4e-	6e	Not prime farmland	B	Limy Upland (pe16-20)	5	.43	.43	5	4L	86
Cp:COLBY--------	100	N/A	6e	Not prime farmland	B	Limy Upland (pe16-20)	5	.43	.43	5	4L	86
Ec:ELKADER------	100	N/A	3e	Not prime farmland	B	Limy Upland (pe16-20)	5	.32	.32	4	4L	86
Gb:GLENBERG-----	100	2e-	3e	Prime farmland if irrigated	B	Sandy Terrace (pe16-20)	3	.24	.24	5	3	86
Go:GOSHEN-------	100	2e-	3c	Prime farmland if irrigated	B	Loamy Terrace (pe16-20)	7	.32	.32	5	6	48
Ke:KEITH--------	100	1-	3c	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Ko:KIM----------	70	N/A	6e	Not prime farmland	B	Limy Upland (pe16-20)	5	.32	.32	5	4L	86
Ko:OTERO--------	30	6e-	6e	Not prime farmland	B	Sandy (pe16-20)	3	.24	.24	5	3	86
Ku:KUMA---------	100	1-	3c	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Lm:LIMON--------	100	3s-	6s	Not prime farmland	C	Clay Terrace (pe16-20)	4	.24	.24	5	4	86
Mc:MANTER-------	100	3e-	4e	Not prime farmland	B	Sandy (pe16-20)	3	.20	.20	5	3	86
Mh:MIDWAY-------	100	6e-	6e	Not prime farmland	D	Shale Breaks (pe16-20)	4	.37	.37	2	4	86
Po:PLEASANT-----	100	N/A	4w	Not prime farmland	D	Clay Upland (pe16-20)	8	.37	.37	5	7	38
Rc:RAZOR--------	100	3e-	6e	Not prime farmland	C	Clay Upland (pe16-20)	4	.37	.37	3	4	86
Sc:SATANTA------	100	2e-	3e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.28	.28	5	6	48
Se:SWEETWATER---	100	N/A	5w	Not prime farmland	D	Subirrigated (pe16-20)	8	.28	.28	4	7	38

Wallace County, Kansas: Published
Field Office Thunderbook: Soils Properties for Conservation Planning--Continued

Map symbol and soil name	Percent	Irr Cap Class	Nonirr Cap Class	Prime Farmland	Hydro-logic Group	Range site name	Windbreak suitability group	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
								K	Kf	T		
Ua:ULYSSES------	100	1-	3c	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Ub:ULYSSES------	100	2e-	3e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Uc:ULYSSES------	100	3e-	4e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Us:ULYSSES------	65	2e-	3e	Prime farmland if irrigated	B	Loamy Upland (pe16-20)	7	.32	.32	5	6	48
Us:COLBY--------	35	3e-	4e	Prime farmland if irrigated	B	Limy Upland (pe16-20)	5	.43	.43	5	4L	86
W:WATER---------	100	N/A	N/A	Not prime farmland		Unspecified		---	---	-	---	---

RANGELAND PRODUCTIVITY
Wallace County, Kansas

Use and Explanation of Rangeland, Grazed Forest Land, Native Pastureland Interpretations

Information in this subsection can be used to plan the use and management of soils for rangeland, grazed forest land, and native pasture. Different kinds of soils vary in their capacity to produce native grasses and other plants suitable for grazing. Information in this subsection provides groupings of similar soils and estimates of potential forage production, which can be used to determine livestock stocking rates.

Rangeland. Range is land on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Rangeland receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

Grazed Forest Land. Includes land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

Native Pasture. Includes land on which the native vegetation (climax or natural potential plant community) is forest but which is used and managed primarily for production of native plants for forage. Native pasture includes cut-over forest land and forest land cleared and now managed for native or naturalized forage plants.

Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management based on the relationship between the soils and vegetation and water.

The Rangeland, Grazed Forest land, Native Pastureland Interpretations shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, unfavorable years. An explanation of the column headings in this table follows.

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, average, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service. The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

RANGELAND PRODUCTIVITY--Continued
Wallace County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
063GB:				
Glenberg	Sandy Bottomland	2,500	2,000	1,800
Bankard	Sandy Bottomland	2,500	1,800	1,200
063KM:				
Kimst	Loamy Plains	1,600	1,000	500
063KR:				
Kuma	Loamy Plains	1,800	1,500	800
Keith	Loamy Plains	1,800	1,500	800
109EB:				
Elkader	Limy Upland (pe16-20)	2,500	1,600	1,000
109EC:				
Elkader	Limy Upland (pe16-20)	2,500	1,600	1,000
181RH:				
Kim	Limy Upland (pe16-20)	2,400	1,800	1,000
Otero	Sandy (pe16-20)	1,800	1,500	1,000
181UC:				
Ulysses	Loamy Upland (pe16-20)	2,400	1,800	1,000
181UD:				
Ulysses	Limy Upland (pe16-20)	2,400	1,800	1,000
Colby	Limy Upland (pe16-20)	2,400	1,800	1,000
Bb:				
Bankard	Sands (pe16-20)	2,500	1,750	750
Bc:				
Bankard	Sandy (pe16-20)	2,600	1,800	1,000
Bo:				
Bridgeport	Loamy Lowland (pe16-20)	4,000	3,000	2,000
Bp:				
Bridgeport	Loamy Terrace (pe20-26)	4,000	3,000	2,000
Br:				
Bridgeport	Loamy Terrace (pe16-20)	4,000	3,000	2,000
Bs:				
Bridgeport	Loamy Terrace (pe16-20)	4,000	3,000	2,000
Arvada	Saline Lowland (pe16-20)	2,500	1,800	1,000
Cd:				
Canyon	Shallow Limy (pe16-20)	1,000	900	800
Ch:				
Caruso	Subirrigated (pe16-20)	7,500	6,500	5,000
Co:				
Colby	Limy Upland (pe16-20)	1,600	1,200	800
COC:				
Colby	Loamy Plains	1,600	1,000	500
Cp:				
Colby	Limy Upland (pe16-20)	1,600	1,200	800
Ec:				
Elkader	Limy Upland (pe16-20)	2,500	1,600	1,000
Gb:				
Glenberg	Sandy Terrace (pe16-20)	3,000	2,500	2,000
Go:				
Goshen	Loamy Terrace (pe16-20)	3,300	2,900	2,500
Ke:				
Keith	Loamy Upland (pe16-20)	2,500	2,000	1,500
Ko:				
Kim	Limy Upland (pe16-20)	2,400	1,800	1,000
Otero	Sandy (pe16-20)	1,800	1,500	1,000
Ku:				
Kuma	Loamy Upland (pe16-20)	2,000	1,500	800
Lm:				
Limon	Clay Terrace (pe16-20)	2,000	1,500	800
Mc:				
Manter	Sandy (pe16-20)	2,000	1,600	800
Mh:				
Midway	Shale Breaks (pe16-20)	1,600	1,400	950
Po:				
Pleasant	Clay Upland (pe16-20)	2,400	1,800	1,000
Rc:				
Razor	Clay Upland (pe16-20)	1,500	1,000	700
Sc:				
Satanta	Loamy Upland (pe16-20)	2,300	1,500	1,200
Se:				
Sweetwater	Subirrigated (pe16-20)	5,000	4,250	3,500
Ua:				
Ulysses	Loamy Upland (pe16-20)	2,400	1,800	1,000
Ub:				
Ulysses	Loamy Upland (pe16-20)	2,400	1,800	1,000
Uc:				
Ulysses	Loamy Upland (pe16-20)	2,400	1,800	1,000
Us:				
Ulysses	Loamy Upland (pe16-20)	2,400	1,800	1,000
Colby	Limy Upland (pe16-20)	1,600	1,200	800
W:				
Water	---	---	---	---

BUILDING SITE DEVELOPMENT
Wallace County, Kansas

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. The following tables show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

BUILDING SITE DEVELOPMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bankard	30	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
063KM:							
Kimst	85	Not limited		Not limited		Not limited	
063KR:							
Kuma	45	Not limited		Not limited		Not limited	
Keith	30	Not limited		Not limited		Not limited	
109EB:							
Elkader	100	Not limited		Not limited		Not limited	
109EC:							
Elkader	100	Not limited		Not limited		Somewhat limited Slope	0.00
181RH:							
Kim	70	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
Otero	30	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
181UC:							
Ulysses	100	Somewhat limited Shrink-swell Slope	0.50 0.00	Somewhat limited Slope	0.00	Very limited Slope Shrink-swell	1.00 0.50
181UD:							
Ulysses	60	Not limited		Not limited		Not limited	
Colby	40	Not limited		Not limited		Not limited	
Bb:							
Bankard	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bc:							
Bankard	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bo:							
Bridgeport	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Bp:							
Bridgeport	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Br:							
Bridgeport	100	Not limited		Not limited		Somewhat limited Slope	0.00
Bs:							
Bridgeport	55	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Arvada	45	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50
Cd:							
Canyon	100	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Ch:							
Caruso	100	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding	1.00
Co:							
Colby	100	Not limited		Not limited		Somewhat limited Slope	0.12
COC:							
Colby	85	Not limited		Not limited		Somewhat limited Slope	0.00
Cp:							
Colby	100	Somewhat limited Slope	0.37	Somewhat limited Slope	0.37	Very limited Slope	1.00
Ec:							
Elkader	100	Not limited		Not limited		Somewhat limited Slope	0.00
Gb:							
Glenberg	100	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Go:							
Goshen	100	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50	Very limited Flooding Shrink-swell	1.00 0.50

BUILDING SITE DEVELOPMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ke:							
Keith	100	Not limited		Not limited		Not limited	
Ko:							
Kim	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
Otero	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
Ku:							
Kuma	100	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
Lm:							
Limon	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Mc:							
Manter	100	Not limited		Not limited		Somewhat limited	
						Slope	0.00
Mh:							
Midway	100	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Shrink-swell	1.00
		Slope	0.84	Slope	0.84	Slope	1.00
Po:							
Pleasant	100	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Rc:							
Razor	100	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
				Depth to soft bedrock	0.29	Slope	0.00
Sc:							
Satanta	100	Not limited		Not limited		Not limited	
Se:							
Sweetwater	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.81	Depth to saturated zone	1.00	Depth to saturated zone	0.81
Ua:							
Ulysses	100	Not limited		Not limited		Not limited	
Ub:							
Ulysses	100	Not limited		Not limited		Not limited	
Uc:							
Ulysses	100	Not limited		Not limited		Somewhat limited	
						Slope	0.12
Us:							
Ulysses	65	Not limited		Not limited		Not limited	
Colby	35	Not limited		Not limited		Not limited	
W:							
Water	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00

BUILDING SITE DEVELOPMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
Bankard	30	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Droughty	0.69
				Flooding	0.60	Flooding	0.60
				Depth to dense layer	0.50		
063KM:							
Kimst	85	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
063KR:							
Kuma	45	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
Keith	30	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
109EB:							
Elkader	100	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
109EC:							
Elkader	100	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
181RH:							
Kim	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
				Cutbanks cave	0.10		
Otero	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
				Cutbanks cave	0.10		
181UC:							
Ulysses	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.00
		Frost action	0.50	Slope	0.00		
		Slope	0.00				
181UD:							
Ulysses	60	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Colby	40	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
Bb:							
Bankard	100	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
				Flooding	0.60		
				Depth to dense layer	0.50		
Bc:							
Bankard	100	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.40	Cutbanks cave	1.00	Droughty	0.37
Bo:							
Bridgeport	100	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
Bp:							
Bridgeport	100	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Frost action	0.50				
		Flooding	0.40				
Br:							
Bridgeport	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Bs:							
Bridgeport	55	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
		Flooding	0.40				
Arvada	45	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Too clayey	0.50	Salinity	1.00
		Flooding	0.40	Cutbanks cave	0.10	Droughty	0.00
Cd:							
Canyon	100	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Cutbanks cave	0.10	Droughty	0.88

BUILDING SITE DEVELOPMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ch:							
Caruso	100	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	0.60
		Low strength	1.00	Flooding	0.60		
		Frost action	0.50	Cutbanks cave	0.10		
Co:							
Colby	100	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
COC:							
Colby	85	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Cp:							
Colby	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
				Cutbanks cave	0.10		
Ec:							
Elkader	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Gb:							
Glenberg	100	Somewhat limited		Very limited		Not limited	
		Flooding	0.40	Cutbanks cave	1.00		
Go:							
Goshen	100	Somewhat limited		Somewhat limited		Not limited	
		Shrink-swell	0.50	Cutbanks cave	0.10		
		Frost action	0.50				
		Flooding	0.40				
Ke:							
Keith	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Ko:							
Kim	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
				Cutbanks cave	0.10		
Otero	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
				Cutbanks cave	0.10		
Ku:							
Kuma	100	Very limited		Somewhat limited		Not limited	
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Frost action	0.50				
Lm:							
Limon	100	Very limited		Somewhat limited		Very limited	
		Shrink-swell	1.00	Too clayey	0.28	Too clayey	1.00
		Flooding	0.40	Cutbanks cave	0.10	Salinity	0.13
Mc:							
Manter	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Mh:							
Midway	100	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00
		Shrink-swell	1.00	Slope	0.84	Droughty	1.00
		Slope	0.84	Cutbanks cave	0.10	Too clayey	1.00
						Slope	0.84
Po:							
Pleasant	100	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10		
Rc:							
Razor	100	Very limited		Somewhat limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	0.29	Too clayey	1.00
				Too clayey	0.28	Sodium content	1.00
				Cutbanks cave	0.10	Depth to bedrock	0.29
Sc:							
Satanta	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Se:							
Sweetwater	100	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Depth to saturated zone	0.48	Depth to saturated zone	1.00	Depth to saturated zone	0.48
				Flooding	0.60		

BUILDING SITE DEVELOPMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ua:							
Ulysses	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Ub:							
Ulysses	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Uc:							
Ulysses	100	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Us:							
Ulysses	65	Somewhat limited		Somewhat limited		Not limited	
		Frost action	0.50	Cutbanks cave	0.10		
Colby	35	Not limited		Somewhat limited		Not limited	
				Cutbanks cave	0.10		
W:							
Water	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Low strength	1.00	Cutbanks cave	0.10		

CONSTRUCTION MATERIALS
Wallace County, Kansas

Construction Materials

The following tables give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated good, fair, or poor as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

The soils are rated as a probable or improbable source of sand and gravel. A rating of probable means that the source material is likely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. The number 0.00 indicates that the soil is an improbable source. A number between 0.00 and 1.00 indicates the degree to which the soil is a probable source of sand or gravel.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In these tables, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
063GB:					
Glenberg	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.09
		Thickest layer	0.00	Bottom layer	0.36
Bankard	30	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.49
		Thickest layer	0.00	Bottom layer	0.99
063KM:					
Kimst	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
063KR:					
Kuma	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Keith	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
109EB:					
Elkader	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
109EC:					
Elkader	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
181RH:					
Kim	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Otero	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.09
181UC:					
Ulysses	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
181UD:					
Ulysses	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colby	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bb:					
Bankard	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.49
Bc:					
Bankard	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.09
Bo:					
Bridgeport	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bp:					
Bridgeport	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Br:					
Bridgeport	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Bs:					
Bridgeport	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Arvada	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cd:					
Canyon	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ch:					
Caruso	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Co:					
Colby	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
COC:					
Colby	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cp:					
Colby	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ec:					
Elkader	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Gb:					
Glenberg	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.07
		Thickest layer	0.00	Thickest layer	0.09
Go:					
Goshen	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ke:					
Keith	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ko:					
Kim	70	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Otero	30	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.08
		Thickest layer	0.00	Thickest layer	0.09
Ku:					
Kuma	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Lm:					
Limon	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Mc:					
Manter	100	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.09
		Thickest layer	0.00	Thickest layer	0.09
Mh:					
Midway	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Po:					
Pleasant	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rc:					
Razor	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sc:					
Satanta	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Se:					
Sweetwater	100	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.46
Ua:					
Ulysses	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ub:					
Ulysses	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Uc:					
Ulysses	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Us:					
Ulysses	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Colby	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
W:					
Water	100	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Fair		Good		Fair	
		Low content of organic matter	0.50			Too sandy	0.68
		Too sandy	0.68			Rock fragments	0.97
Bankard	30	Poor		Good		Poor	
		Too sandy	0.00			Hard to reclaim	0.00
		Wind erosion	0.00			Too sandy	0.00
		Droughty	0.35				
		Low content of organic matter	0.88				
063KM:							
Kimst	85	Fair		Good		Good	
		Low content of organic matter	0.12				
		No water erosion limitation	0.99				
063KR:							
Kuma	45	Fair		Good		Good	
		Low content of organic matter	0.88				
		No water erosion limitation	0.99				
Keith	30	Fair		Good		Good	
		Low content of organic matter	0.88				
		Water erosion	0.90				
109EB:							
Elkader	100	Poor		Poor		Poor	
		Low content of organic matter	0.00	Low strength	0.00	Salinity	0.00
		Carbonate content	0.16			Carbonate content	0.16
		Water erosion	0.90				
		Salinity	0.97				
109EC:							
Elkader	100	Poor		Poor		Poor	
		Low content of organic matter	0.00	Low strength	0.00	Salinity	0.00
		Carbonate content	0.16			Carbonate content	0.16
		Water erosion	0.90				
		Salinity	0.97				
181RH:							
Kim	70	Poor		Good		Fair	
		Low content of organic matter	0.00			Slope	0.16
						Rock fragments	0.97
Otero	30	Poor		Good		Fair	
		Low content of organic matter	0.00			Slope	0.16
						Rock fragments	0.97
181UC:							
Ulysses	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
181UD:							
Ulysses	60	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Colby	40	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bb:							
Bankard	100	Poor		Good		Poor	
		Wind erosion	0.00			Hard to reclaim	0.00
		Low content of organic matter	0.50			Rock fragments	0.12
Bc:							
Bankard	100	Poor		Good		Fair	
		Low content of organic matter	0.00			Rock fragments	0.03
		Droughty	0.58			Hard to reclaim	0.98
Bo:							
Bridgeport	100	Poor		Poor		Good	
		Low content of organic matter	0.00	Low strength	0.00		
		Water erosion	0.90				
Bp:							
Bridgeport	100	Fair		Poor		Good	
		Low content of organic matter	0.82	Low strength	0.00		
		Water erosion	0.90				
Br:							
Bridgeport	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Bs:							
Bridgeport	55	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Arvada	45	Poor		Fair		Poor	
		Too clayey	0.00	Shrink-swell	0.72	Too Clayey	0.00
		Low content of organic matter	0.00			Salinity	0.00
		Too alkaline	0.00			Rock fragments	0.97
		Salinity	0.88				
		No water erosion limitation	0.99				
Cd:							
Canyon	100	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Slope	0.82	Slope	0.00
		Depth to bedrock	0.00			Rock fragments	0.03
		Carbonate content	0.32			Carbonate content	0.32
Ch:							
Caruso	100	Poor		Poor		Fair	
		Low content of organic matter	0.00	Low strength	0.00	Depth to saturated zone	0.89
				Depth to saturated zone	0.89		
Co:							
Colby	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
COC:							
Colby	85	Fair		Good		Good	
		Low content of organic matter	0.88				
		Water erosion	0.90				
Cp:							
Colby	100	Poor		Good		Fair	
		Low content of organic matter	0.00			Slope	0.63
		Water erosion	0.90				

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ec:							
Elkader	100	Poor		Good		Poor	
		Low content of organic matter	0.00			Salinity	0.00
		Carbonate content	0.16			Carbonate content	0.16
		Water erosion	0.90				
		Salinity	0.97				
Gb:							
Glenberg	100	Fair		Good		Good	
		Low content of organic matter	0.88				
Go:							
Goshen	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Ke:							
Keith	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Ko:							
Kim	70	Poor		Good		Fair	
		Low content of organic matter	0.00			Slope	0.16
						Rock fragments	0.97
Otero	30	Poor		Good		Fair	
		Low content of organic matter	0.00			Slope	0.16
						Rock fragments	0.97
Ku:							
Kuma	100	Fair		Good		Good	
		Low content of organic matter	0.50				
		No water erosion limitation	0.99				
Lm:							
Limon	100	Poor		Fair		Poor	
		Low content of organic matter	0.00	Shrink-swell	0.12	Too Clayey	0.00
		Too clayey	0.00			Salinity	0.88
Mc:							
Manter	100	Poor		Good		Fair	
		Low content of organic matter	0.00			Rock fragments	0.97
Mh:							
Midway	100	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
		Low content of organic matter	0.00	Shrink-swell	0.12	Too Clayey	0.00
		Depth to bedrock	0.00			Slope	0.16
		Too clayey	0.00			Salinity	0.88
		Water erosion	0.90				
Po:							
Pleasant	100	Poor		Poor		Poor	
		Low content of organic matter	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
		Too clayey	0.00	Shrink-swell	0.31	Too Clayey	0.00
		No water erosion limitation	0.99				

CONSTRUCTION MATERIALS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rc:							
Razor	100	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too Clayey	0.00
		Low content of organic matter	0.50	Shrink-swell	0.12	Depth to bedrock	0.71
		Salinity	0.50			Sodium content	0.98
		Depth to bedrock	0.71				
		Droughty	0.95				
		Sodium content	0.97				
		No water erosion limitation	0.99				
Sc:							
Satanta	100	Fair		Good		Good	
		Low content of organic matter	0.88				
Se:							
Sweetwater	100	Poor		Fair		Fair	
		Low content of organic matter	0.00	Depth to saturated zone	0.29	Depth to saturated zone	0.29
Ua:							
Ulysses	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Ub:							
Ulysses	100	Fair		Good		Good	
		Low content of organic matter	0.18				
		Water erosion	0.90				
Uc:							
Ulysses	100	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Us:							
Ulysses	65	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
Colby	35	Poor		Good		Good	
		Low content of organic matter	0.00				
		Water erosion	0.90				
W:							
Water	100	Poor		Poor		Poor	
		Low content of organic matter	0.00	Slope	0.00	Slope	0.00
				Low strength	0.00		

RECREATIONAL INTERPRETATIONS
Wallace County, Kansas

Recreation

The soils of the survey area are rated in the following tables according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in this table can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

RECREATIONAL INTERPRETATIONS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.00
Bankard	30	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.87	Too sandy	0.87
		Too sandy	0.87			Flooding	0.60
063KM:							
Kimst	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
063KR:							
Kuma	45	Not limited		Not limited		Not limited	
Keith	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
109EB:							
Elkader	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.00
109EC:							
Elkader	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
						Dusty	0.50
181RH:							
Kim	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Gravel content	0.04
Otero	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
						Gravel content	0.05
181UC:							
Ulysses	100	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Slope	1.00
		Slope	0.00	Slope	0.00	Dusty	0.50
181UD:							
Ulysses	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.00
Colby	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.00
Bb:							
Bankard	100	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too sandy	0.87	Too sandy	0.87
		Too sandy	0.87			Flooding	0.60
Bc:							
Bankard	100	Very limited		Not limited		Not limited	
		Flooding	1.00				
Bo:							
Bridgeport	100	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Bp:							
Bridgeport	100	Very limited		Not limited		Not limited	
		Flooding	1.00				
Br:							
Bridgeport	100	Not limited		Not limited		Somewhat limited	
						Slope	0.50
Bs:							
Bridgeport	55	Very limited		Not limited		Not limited	
		Flooding	1.00				
Arvada	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Salinity	1.00	Salinity	1.00
		Salinity	1.00	Dusty	0.50	Dusty	0.50
		Dusty	0.50	Restricted permeability	0.45	Restricted permeability	0.45
		Restricted permeability	0.45			Gravel content	0.06
Cd:							
Canyon	100	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Gravel content	0.18
Ch:							
Caruso	100	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
Co:							
Colby	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.87
						Dusty	0.50
COC:							
Colby	85	Somewhat limited		Somewhat limited		Somewhat limited	

RECREATIONAL INTERPRETATIONS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Dusty	0.50	Dusty	0.50	Slope	0.50
						Dusty	0.50
Cp:							
Colby	100	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Slope	1.00
		Slope	0.37	Slope	0.37	Dusty	0.50
Ec:							
Elkader	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.50
						Dusty	0.50
Gb:							
Glenberg	100	Very limited		Not limited		Not limited	
		Flooding	1.00				
Go:							
Goshen	100	Very limited		Not limited		Not limited	
		Flooding	1.00				
Ke:							
Keith	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Ko:							
Kim	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Gravel content	0.04
Otero	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Slope	1.00
						Gravel content	0.05
Ku:							
Kuma	100	Not limited		Not limited		Not limited	
Lm:							
Limon	100	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Too clayey	0.50	Too clayey	0.50
		Too clayey	0.50	Restricted permeability	0.39	Restricted permeability	0.39
		Restricted permeability	0.39	Salinity	0.13	Salinity	0.13
		Salinity	0.13				
Mc:							
Manter	100	Not limited		Not limited		Somewhat limited	
						Slope	0.50
						Gravel content	0.06
Mh:							
Midway	100	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84	Slope	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.39	Restricted permeability	0.39	Restricted permeability	0.39
						Gravel content	0.06
Po:							
Pleasant	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Restricted permeability	0.45	Restricted permeability	0.45	Restricted permeability	0.45
Rc:							
Razor	100	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Sodium content	1.00
		Too clayey	0.50	Too clayey	0.50	Slope	0.50
		Restricted permeability	0.39	Restricted permeability	0.39	Too clayey	0.50
						Restricted permeability	0.39
						Depth to bedrock	0.29
Sc:							
Satanta	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.00
Se:							
Sweetwater	100	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Depth to saturated zone	0.48	Depth to saturated zone	0.81
		Depth to saturated zone	0.81	Restricted permeability	0.15	Flooding	0.60
		Restricted permeability	0.15			Restricted permeability	0.15
Ua:							
Ulysses	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50

RECREATIONAL INTERPRETATIONS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ub:							
Ulysses	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.00
Uc:							
Ulysses	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Slope	0.87
						Dusty	0.50
Us:							
Ulysses	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
Colby	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
						Slope	0.13
W:							
Water	100	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00

RECREATIONAL INTERPRETATIONS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:					
Glenberg	50	Not limited		Not limited	
Bankard	30	Somewhat limited		Somewhat limited	
		Too sandy	0.87	Droughty	0.69
				Flooding	0.60
063KM:					
Kimst	85	Somewhat limited		Not limited	
		Dusty	0.50		
063KR:					
Kuma	45	Not limited		Not limited	
Keith	30	Somewhat limited		Not limited	
		Dusty	0.50		
109EB:					
Elkader	100	Somewhat limited		Not limited	
		Dusty	0.50		
109EC:					
Elkader	100	Somewhat limited		Not limited	
		Dusty	0.50		
181RH:					
Kim	70	Somewhat limited		Somewhat limited	
		Dusty	0.50	Slope	0.84
Otero	30	Not limited		Somewhat limited	
				Slope	0.84
181UC:					
Ulysses	100	Somewhat limited		Somewhat limited	
		Dusty	0.50	Slope	0.00
181UD:					
Ulysses	60	Somewhat limited		Not limited	
		Dusty	0.50		
Colby	40	Somewhat limited		Not limited	
		Dusty	0.50		
Bb:					
Bankard	100	Somewhat limited		Somewhat limited	
		Too sandy	0.87	Flooding	0.60
Bc:					
Bankard	100	Not limited		Somewhat limited	
				Droughty	0.37
Bo:					
Bridgeport	100	Not limited		Somewhat limited	
				Flooding	0.60
Bp:					
Bridgeport	100	Not limited		Not limited	
Br:					
Bridgeport	100	Not limited		Not limited	
Bs:					
Bridgeport	55	Not limited		Not limited	
Arvada	45	Somewhat limited		Very limited	
		Dusty	0.50	Salinity	1.00
				Droughty	0.00
Cd:					
Canyon	100	Somewhat limited		Very limited	
		Dusty	0.50	Depth to bedrock	1.00
		Slope	0.18	Slope	1.00
				Droughty	0.88
Ch:					
Caruso	100	Not limited		Somewhat limited	
				Flooding	0.60
Co:					
Colby	100	Somewhat limited		Not limited	
		Dusty	0.50		
COC:					
Colby	85	Somewhat limited		Not limited	
		Dusty	0.50		
Cp:					
Colby	100	Somewhat limited		Somewhat limited	
		Dusty	0.50	Slope	0.37
Ec:					
Elkader	100	Somewhat limited		Not limited	
		Dusty	0.50		
Gb:					
Glenberg	100	Not limited		Not limited	
Go:					
Goshen	100	Not limited		Not limited	
Ke:					
Keith	100	Somewhat limited		Not limited	
		Dusty	0.50		
Ko:					
Kim	70	Somewhat limited		Somewhat limited	
		Dusty	0.50	Slope	0.84
Otero	30	Not limited		Somewhat limited	
				Slope	0.84

RECREATIONAL INTERPRETATIONS--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Paths and trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Ku:					
Kuma	100	Not limited		Not limited	
Lm:					
Limon	100	Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	1.00
				Salinity	0.13
Mc:					
Manter	100	Not limited		Not limited	
Mh:					
Midway	100	Somewhat limited		Very limited	
		Too clayey	0.50	Depth to bedrock	1.00
				Droughty	1.00
				Too clayey	1.00
				Slope	0.84
Po:					
Pleasant	100	Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
Rc:					
Razor	100	Somewhat limited		Very limited	
		Too clayey	0.50	Too clayey	1.00
				Sodium content	1.00
				Depth to bedrock	0.29
Sc:					
Satanta	100	Somewhat limited		Not limited	
		Dusty	0.50		
Se:					
Sweetwater	100	Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.11	Flooding	0.60
				Depth to saturated zone	0.48
Ua:					
Ulysses	100	Somewhat limited		Not limited	
		Dusty	0.50		
Ub:					
Ulysses	100	Somewhat limited		Not limited	
		Dusty	0.50		
Uc:					
Ulysses	100	Somewhat limited		Not limited	
		Dusty	0.50		
Us:					
Ulysses	65	Somewhat limited		Not limited	
		Dusty	0.50		
Colby	35	Somewhat limited		Not limited	
		Dusty	0.50		
W:					
Water	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Water erosion	1.00		

WILDLIFE INTERPRETATIONS
Wallace County, Kansas

Use and Explanation of Wildlife Interpretations

Soils directly affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the development of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, water, and living space. If any one of these elements is missing, inadequate, or inaccessible, wildlife will be scarce or will not inhabit the area. If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, properly managing the existing plant cover, and fostering the natural establishment of desirable plants.

In the Wildlife Interpretations table, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

Suitability Ratings

The potential of the soil is rated good, fair, poor, or very poor.

Good - means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose.

Fair - means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results.

Poor - means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and requires intensive effort.

Very Poor - means that limitations are very severe for the designated element or kind of wildlife habitat. Habitat is difficult to create, improve, or maintain in most places, and management is difficult and requires intensive effort.

Description of Wildlife Habitat Elements

Openland habitat consists of croplands, pastures, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The kind of wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, killdeer, cottontail rabbit, red fox, and coyote.

Woodland habitat consists of hardwood or conifers, or a mixture of these and associated grasses, legumes and wild herbaceous plants. Examples of wildlife attracted to this habitat are wild turkey, thrushes, woodpeckers, owl, tree squirrels, raccoon, and deer.

Wetland habitat consists of water-tolerant plants in open, marshy or swampy, shallow water areas. Examples of wildlife attracted to this habitat are ducks, geese, herons, bitterns, rails, kingfishers, shorebirds, muskrat, mink, and beaver.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, goldenrod, beggarweed, wheatgrass, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated good are Russian-olive, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are fragrant sumac, chokecherry, American plum, sand plum, and gorden currant.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, saltgrass, cordgrass, rushes, sedges, and cattails.

WILDLIFE INTERPRETATIONS--Continued
Wallace County, Kansas

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, red fox and coyote.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Habitat for rangeland wildlife consists of areas of shrubs and wild herbaceous plants. Wildlife attracted to rangeland include antelope, deer, cottontail rabbit, prairie chicken, meadowlark, quail, and pheasant.

WILDLIFE INTERPRETATIONS
Wallace County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Shrubs	Wetland plants	Shallow water areas	Open-land wild-life	Wood-land wild-life	Wetland wild-life	Range-land wild-life
063GB:												
GLENBERG---------	Fair	Fair	Good	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
BANKARD----------	Poor	Poor	Fair	---	---	Fair	Very poor	Very poor	Poor	---	Very poor	Poor
063KM:												
KIMST------------	Poor	Poor	Fair	---	---	Fair	Very poor	Very poor	Poor	---	Very poor	Fair
063KR:												
KUMA-------------	Good	Good	Good	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
KEITH------------	Good	Good	Fair	---	---	Fair	Poor	Very poor	Good	---	Very poor	Fair
109EB:												
ELKADER----------	Good	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
109EC:												
ELKADER----------	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
181RH:												
KIM--------------	Poor	Poor	Fair	---	---	Fair	Very poor	Very poor	Poor	---	Very poor	Fair
OTERO------------	Poor	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
181UC:												
ULYSSES----------	Poor	Fair	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Fair
181UD:												
ULYSSES----------	Good	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
COLBY------------	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
Bb:												
BANKARD----------	Poor	Poor	Fair	Poor	Fair	Poor	Very poor	Very poor	Poor	Fair	Very poor	Poor
Bc:												
BANKARD----------	Fair	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Bo:												
BRIDGEPORT------	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
Bp:												
BRIDGEPORT------	Good	Good	Good	---	---	Fair	Poor	Poor	Good	---	Poor	Fair
Br:												
BRIDGEPORT------	Fair	Good	Fair	---	---	Poor	Poor	Very poor	Fair	---	Very poor	Poor
Bs:												
BRIDGEPORT------	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
ARVADA-----------	Very poor	Very poor	Poor	---	---	Poor	Poor	Very poor	Very poor	---	Very poor	Poor
Cd:												
CANYON-----------	Poor	Poor	Fair	Poor	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor	Poor
Ch:												
CARUSO-----------	Fair	Fair	Good	Poor	Poor	Fair	Fair	Fair	Fair	Poor	Fair	Fair
Co:												
COLBY------------	Poor	Fair	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Poor
COC:												
COLBY------------	Fair	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Cp:												
COLBY------------	Poor	Fair	Fair	---	---	Poor	Very poor	Very poor	Fair	---	Very poor	Poor

WILDLIFE INTERPRETATIONS--Continued
Wallace County, Kansas

Map symbol and soil name	Potential for habitat elements								Potential as habitat for--			
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife	Rangeland wildlife
Ec: ELKADER	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
Gb: GLENBERG	Poor	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Go: GOSHEN	Fair	Good	Good	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Ke: KEITH	Good	Good	Good	Fair	Fair	Good	Very poor	Very poor	Good	Fair	Very poor	Good
Ko: KIM	Poor	Poor	Fair	---	---	Fair	Very poor	Very poor	Poor	---	Very poor	Fair
OTERO	Poor	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Ku: KUMA	Fair	Fair	Fair	---	---	Poor	Poor	Very poor	Fair	---	Very poor	Poor
Lm: LIMON	Poor	Poor	Fair	---	---	Fair	Poor	Very poor	Poor	---	Very poor	Fair
Mc: MANTER	Fair	Good	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Mh: MIDWAY	Very poor	Very poor	Fair	---	---	Fair	Very poor	Very poor	Poor	---	Very poor	Fair
Po: PLEASANT	Fair	Fair	Fair	Very poor	Very poor	Fair	Good	Good	Fair	---	Good	Fair
Rc: RAZOR	Fair	Fair	Fair	---	---	Fair	Very poor	Very poor	Fair	---	Very poor	Fair
Sc: SATANTA	Fair	Fair	Fair	---	---	Fair	Poor	Very poor	Fair	---	Very poor	Fair
Se: SWEETWATER	Poor	Fair	Good	---	Very poor	Fair	Good	Good	Fair	---	Good	Fair
Ua: ULYSSES	Fair	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
Ub: ULYSSES	Fair	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
Uc: ULYSSES	Fair	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
Us: ULYSSES	Fair	Good	Fair	---	---	Poor	Poor	Fair	Fair	---	Poor	Fair
COLBY	Fair	Good	Fair	---	---	Poor	Poor	Poor	Fair	---	Poor	Poor
W: WATER	---	---	---	---	---	---	---	---	---	---	---	---

YIELDS PER ACRE OF PASTURE AND HAYLAND
Wallace County, Kansas

Use and Explanation of Pastureland and Hayland Interpretations

This subsection provides information concerning the suitability of soils for the production of pasture and hayland. This subsection may contain pasture and hayland suitability groupings, land capability and yield estimates, yield estimates for individual grasses or legumes, or other information pertaining to the production of forage.

Pasture and Hayland Suitability Groupings

Soils are placed in pasture and hayland groups according to their suitability for the production of forage. The soils in each group are enough alike to be suited to the same grasses or legumes, to have similar limitations and hazards, to require similar management, and to have similar productivity and other responses to management. Thus, the pasture and hayland suitability group is a convenient way of grouping the soils for their management. If used, these groupings are identified and described in other reports in the subsection.

Yield Estimates

The average yields per acre that can be expected of the principal pasture or hayland crops, under a high level of management, are presented in this subsection. In any given year, yields may be higher or lower than those indicated in the tables because of variations in rainfall or other climatic factors. The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

Under good management, proper grazing is essential for the production of high quality forage, stand survival, and erosion control. Proper grazing helps plants maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation are also important management practices.

The Pasture and Hayland table show yield estimates in tons per acre and animal unit months for pasture and hayland groups. An animal unit month is the amount of forage required by one animal unit (AU) for 30 days. On animal unit (AU) is one (1000 pound) mature cow and a calf up to weaning age (usually six months of age) or their equivalent. The Natural Resources Conservation Service uses 900 pounds of air dry forage as the amount needed to meet this requirement. To maintain a healthy and vigorous plant community, the degree of use should never be greater than 50 percent. Therefore only 25 percent of the total biomass grown is considered consumed by the grazing animal. Animal Unit Months can be converted to air dry pounds per acre production by multiplying the AUM by 30 days, then by 30 pounds per day, and then by four. This figure is the amount of total forage production.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil in the Nontechnical Description section. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

YIELDS PER ACRE OF PASTURE AND HAYLAND--Continued
Wallace County, Kansas

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil) Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay		Smooth bromegrass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
063GB:						
Glenberg	3e	3e	---	4.50	---	---
Bankard	6s	3e	---	3.50	---	---
063KM:						
Kimst	4e	4e	---	3.50	---	---
063KR:						
Kuma	2c	2e	---	7.00	---	---
Keith	2c	2e	---	7.00	---	---
109EB:						
Elkader	2e	2e	---	---	---	---
109EC:						
Elkader	3e	---	---	---	---	---
181RH:						
Kim	6e	---	---	---	---	---
Otero	6e	6e	---	---	---	---
181UC:						
Ulysses	6e	---	---	---	---	---
181UD:						
Ulysses	3e	2e	---	5.00	---	---
Colby	3e	2e	---	4.00	---	---
Bb:						
Bankard	6w	4w	---	3.80	---	---
Bc:						
Bankard	4w	4w	---	---	---	---
Bo:						
Bridgeport	2w	2w	3.50	6.50	---	6.00
Bp:						
Bridgeport	2c	1	3.00	6.00	4.50	11.00
Br:						
Bridgeport	3e	3e	---	5.50	---	10.00
Bs:						
Bridgeport	3c	1	1.50	6.00	---	10.00
Arvada	7	---	---	---	---	---
Cd:						
Canyon	6s	---	---	---	---	---
Ch:						
Caruso	3w	2w	3.00	6.00	---	6.00
Co:						
Colby	6e	4e	---	3.50	---	---
COC:						
Colby	4e	4e	---	3.50	---	---
Cp:						
Colby	6e	---	---	---	---	---
Ec:						
Elkader	3e	---	---	---	---	---
Gb:						
Glenberg	3e	2e	---	5.00	---	---
Go:						
Goshen	3c	2e	---	5.40	---	---
Ke:						
Keith	3c	1	1.60	5.40	---	---

YIELDS PER ACRE OF PASTURE AND HAYLAND--Continued
Wallace County, Kansas

(Yields in the "N" columns are for nonirrigated soils; those in the "I" columns are for irrigated soils. Yields are those that can be expected under a high level of nonirrigated and irrigated management by component. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil) Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Map symbol and soil name	Land capability		Alfalfa hay		Smooth bromegrass	
	N	I	N	I	N	I
			Tons	Tons	AUM	AUM
Ko:						
Kim	6e	---	---	---	---	---
Otero	6e	6e	---	---	---	---
Ku:						
Kuma	3c	1	---	---	---	---
Lm:						
Limon	6s	3s	---	5.00	---	---
Mc:						
Manter	4e	3e	---	4.50	---	---
Mh:						
Midway	6e	6e	---	---	---	---
Po:						
Pleasant	4w	---	---	---	---	---
Rc:						
Razor	6e	3e	---	---	---	---
Sc:						
Satanta	3e	2e	---	5.00	---	---
Se:						
Sweetwater	5w	---	---	---	---	---
Ua:						
Ulysses	3c	1	---	6.00	---	---
Ub:						
Ulysses	3e	2e	---	5.00	---	---
Uc:						
Ulysses	4e	3e	---	4.00	---	---
Us:						
Ulysses	3e	2e	---	5.00	---	---
Colby	4e	3e	---	4.00	---	---
W:						
Water	---	---	---	---	---	---

CONSERVATION TREE AND SHRUB MANAGEMENT
Wallace County, Kansas

A Conservation Tree/Shrub Suitability Group (CTSG), formerly Windbreak Suitability Group, is a physiographic unit or area having similar climatic and edaphic characteristics that control the selection and height growth of trees and shrubs.

In this table, the Conservation Tree and Shrub Grouping is expressed as a group index number. The group index for Conservation Tree and Shrub groups (CTSG) are a guide for species best suited for different kinds of soil and for prediction height, growth, and effectiveness. The groupings can be used when selection woody plants for windbreaks, wildlife plantings riparian buffers, reforestation, other environmental plantings, recreation, landscaping, wetland restoration or enhancement and critical area plantings. CTSG's are developed to assure satisfactory species selection and adaptation to specific conditions of soil, climate and physiography. CTSG's are a guide for selection species best suited for different kinds of soil and prediction height growth and effectiveness.

All soil series mapped in the state have been placed in 10 groups of similar soil characteristics. Groups 1, 2, 3, 4, 6, and 9 are further divided into subgroups. In addition, all groups provide information by Major Land Resource Areas.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters a tree or shrub may be well or poorly suited because of soil characteristics. Each tree or shrub also has definable potentials of height growth depending on the factors just mentioned. Accurate definitions of potential heights are necessary for proper windbreak planning and design.

Windbreaks protect livestock, buildings, roads and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low-growing and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not grow trees originally. Knowledge of how trees perform on such land can be gained only by observing and recording their performance where trees have been planted and survived. The problem is compounded by the fact that many favorite windbreak species are not indigenous to the areas in which they are planted.

The Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups shows the adapted species listing for each group index number. Showing the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates are based on measurements and observation of established plantings that have been given adequate care. This information should be used to determine the placement of a windbreak, the area protected and the arrangement of species.

A number of attributes are included in the CTSG species tables for each group number found in this section of the Field Office Technical Guide. These attributes were rated subjectively and assigned a relative value to further assist those unfamiliar with individual species characteristics or desirability for the intended use. Definitions and explanations can be found. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery. See part 537 of the National Forestry Manual for additional information.

In the Tree and Shrub Management table interpretive ratings are given for various aspects of forest and conservation tree and shrub management. Some rating class terms indicate the degree to which the soils are suited to a specified forest management practice. Well suited indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. Moderately well suited indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. Poorly suited indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. Unsuited indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest and conservation tree and shrub management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet. Also, in the Kansas Field Office Technical Guide Notice KS-230, Conservation Tree and Shrub Plantings Suitability Groups.

Ratings in the columns suitability for hand planting and suitability for mechanical planting are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately well suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column suitability for mechanical site preparation (surface) are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1-foot is considered in the ratings.

Ratings in the column suitability for mechanical site preparation (deep) are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column potential for seedling mortality are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality. See the National Forestry Manual, Subpart B for criteria used in rating management concerns. Specific information on plants and yields can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

CONSERVATION TREE AND SHRUB MANAGEMENT
Wallace County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Wind break Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
063GB:						
Glenberg	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Bankard	1K	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Moderate Soil reaction
063KM:						
Kimst	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
063KR:						
Kuma	3	Well suited	Well suited	Well suited	Well suited	Low
Keith	3	Well suited	Well suited	Well suited	Well suited	Low
109EB:						
Elkader	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
109EC:						
Elkader	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
181RH:						
Kim	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Otero	5	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
181UC:						
Ulysses	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
181UD:						
Ulysses	3	Well suited	Well suited	Well suited	Well suited	Low
Colby	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Bb:						
Bankard	5	Moderately suited Sandiness	Moderately suited Sandiness	Well suited	Well suited	Moderate Soil reaction
Bc:						
Bankard	5	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Bo:						
Bridgeport	1K	Well suited	Well suited	Well suited	Well suited	Low
Bp:						
Bridgeport	1K	Well suited	Well suited	Well suited	Well suited	Low
Br:						
Bridgeport	1K	Well suited	Well suited	Well suited	Well suited	Low
Bs:						
Bridgeport	1K	Well suited	Well suited	Well suited	Well suited	Low
Arvada	10	Moderately suited Stickiness	Moderately suited Stickiness	Well suited	Well suited	High Available water Soil reaction Salinity
Cd:						
Canyon	10	Well suited	Poorly suited Slope	Poorly suited Slope	Poorly suited Slope	Moderate Lime Soil reaction
Ch:						
Caruso	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Co:						
Colby	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
COC:						
Colby	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
Cp:						
Colby	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Ec:						
Elkader	8	Well suited	Well suited	Well suited	Well suited	Moderate Lime Soil reaction
Gb:						
Glenberg	1K	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction

CONSERVATION TREE AND SHRUB MANAGEMENT
Wallace County,
Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. Pines and spruces are prone to disease problems. See text for further explanation of ratings in this table.)

Map symbol and soil name	Windbreak Group	Suitability for hand planting	Suitability for mechanical planting	Suitability for mechanical site preparation (surface)	Suitability for mechanical site preparation (deep)	Potential for seedling mortality
		Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
Go:						
Goshen	1	Well suited	Well suited	Well suited	Well suited	Low
Ke:						
Keith	3	Well suited	Well suited	Well suited	Well suited	Low
Ko:						
Kim	8	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Otero	5	Well suited	Moderately suited Slope	Well suited	Well suited	Moderate Soil reaction
Ku:						
Kuma	3	Well suited	Well suited	Well suited	Well suited	Low
Lm:						
Limon	1	Moderately suited Stickiness	Moderately suited Stickiness	Poorly suited Stickiness	Well suited	Moderate Soil reaction Salinity
Mc:						
Manter	5	Well suited	Well suited	Well suited	Well suited	Low
Mh:						
Midway	10	Moderately suited Stickiness Restrictive layer Rock fragments	Poorly suited Rock fragments Slope Stickiness	Poorly suited Rock fragments	Well suited	Moderate Salinity
Po:						
Pleasant	10	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	High Wetness
Rc:						
Razor	8	Poorly suited Stickiness	Poorly suited Stickiness	Poorly suited Stickiness	Well suited	Low
Sc:						
Satanta	3	Well suited	Well suited	Well suited	Well suited	Low
Se:						
Sweetwater	2K	Well suited	Well suited	Well suited	Unsuited Wetness	Moderate Soil reaction
Ua:						
Ulysses	3	Well suited	Well suited	Well suited	Well suited	Low
Ub:						
Ulysses	3	Well suited	Well suited	Well suited	Well suited	Low
Uc:						
Ulysses	3	Well suited	Moderately suited Slope	Well suited	Well suited	Low
Us:						
Ulysses	3	Well suited	Well suited	Well suited	Well suited	Low
Colby	8	Well suited	Well suited	Well suited	Well suited	Moderate Soil reaction
W:						
Water		Unsuited Horizon table contains no data	Unsuited Horizon table contains no data	Unsuited Horizon table contains no data	Unsuited Horizon table contains no data	High Horizon table contains no data

ENGINEERING INDEX PROPERTIES
Wallace County, Kansas

Engineering Index Properties table gives the engineering classifications and the range of index properties for the layers of each soil in the survey area. Depth to the upper and lower boundaries of each layer is indicated. Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. Loam, for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, gravelly. Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 1998) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 1998). The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection. If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Engineering Index Properties table.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

ENGINEERING INDEX PROPERTIES--Continued
Wallace County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
063GB:												
Glenberg-------	0-4	Fine sandy loam	CL, CL-ML, SC, SC-SM	A-4	0	0	95-100	85-100	70-85	40-55	25-30	5-10
	4-13	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0	95-100	95-100	60-85	30-55	20-25	NP-5
	13-21	Sandy loam	CL-ML, ML, SC-SM, SM	A-1-b, A-2-4, A-4	0	0	90-100	75-100	45-85	15-55	20-25	NP-5
	21-60	Loamy sand	CL-ML, ML, SC-SM, SM	A-1-b, A-2-4, A-4	0	0	90-100	75-100	45-85	15-55	20-25	NP-5
Bankard--------	0-4	Loamy sand	SC-SM, SM	A-2-4	0	0	95-100	90-100	50-75	15-30	20-25	NP-5
	4-60	Sand	SM, SP-SM, SW-SM	A-1-b, A-2-4, A-3	0	0	90-100	80-100	45-70	5-25	20-25	NP-5
063KM:												
Kimst----------	0-6	Loam	CL, CL-ML	A-4	0	0	95-100	85-100	75-90	60-75	25-30	5-10
	6-12	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	90-100	85-100	65-95	35-80	25-35	5-15
	12-60	Loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	90-100	85-100	65-95	35-80	25-35	5-15
063KR:												
Kuma-----------	0-5	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	5-9	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-15
	9-16	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-15
	16-19	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-15
	19-24	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-15
	24-34	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-15
	34-43	Silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	60-90	25-30	5-10
	43-56	Silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	60-90	25-30	5-10
	56-61	Silt loam	CL, CL-ML	A-4	0	0	100	100	85-100	60-90	25-30	5-10
Keith----------	0-6	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	6-9	Silt loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-20
	9-17	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	30-45	5-20
	17-24	Silty clay loam	ML	A-4, A-6, A-7	0	0	100	100	95-100	85-95	30-45	5-15
	24-34	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	34-41	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	41-47	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	47-60	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
109EB:												
Elkader--------	0-15	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	65-90	25-45	7-20
	15-23	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
	23-60	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
109EC:												
Elkader--------	0-15	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	65-90	25-45	7-20
	15-23	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
	23-60	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
181RH:												
Kim------------	0-6	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	80-100	75-100	60-90	55-75	20-30	NP-10
	6-60	Clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	75-100	50-95	35-85	20-40	5-15
Otero----------	0-5	Sandy loam	SM	A-2	0	0-1	95-100	75-100	50-80	25-35	20-25	NP-5
	5-60	Sandy loam	SM	A-2	0	0-1	90-100	75-100	40-80	25-35	15-25	NP-5
181UC:												
Ulysses--------	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	10-30	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	30-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
181UD:												
Ulysses--------	0-11	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	11-20	Silt loam	CL	A-7, A-6	0	0	100	100	90-100	85-100	25-43	11-20
	20-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Colby----------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	4-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Bb:												
Bankard--------	0-5	Loamy sand	SM	A-2	0	0	95-100	90-100	50-90	15-35	---	NP
	5-60	Stratified sand	SM, SP, SP-SM	A-3, A-1, A-2	0	0	90-100	50-100	20-75	0-20	---	NP
Bc:												
Bankard--------	0-5	Sandy loam	SC-SM, SM	A-2, A-4	0	0	100	90-100	50-70	30-40	10-25	NP-10
	5-60	Sand	SM, SP	A-2	0	0-5	65-100	60-85	40-75	5-35	---	NP
Bo:												
Bridgeport-----	0-16	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	65-90	20-35	4-19
	16-60	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
Bp:												
Bridgeport-----	0-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	65-90	20-35	4-19
	13-60	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
Br:												
Bridgeport-----	0-12	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	65-90	20-35	4-19
	12-60	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
Bs:												
Bridgeport-----	0-6	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	65-90	20-35	4-19
	6-60	Silt loam	CL	A-4, A-6	0	0	100	100	90-100	65-100	25-40	8-20
Arvada---------	0-2	Loam	CL, CL-ML	A-4, A-6	0	0	80-100	75-100	70-100	50-85	20-30	5-15
	2-22	Silty clay loam	CH, CL	A-6, A-7	0	0	95-100	75-100	75-100	60-95	35-60	15-40
	22-60	Silty clay loam	CL, CL-ML	A-4, A-6	0	0	75-100	75-100	65-95	50-85	20-30	5-15

ENGINEERING INDEX PROPERTIES--Continued
Wallace County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Cd:												
Canyon	0-4	Loam	CL, CL-ML, ML	A-4	0	0-5	90-95	75-95	50-95	50-75	15-30	2-10
	4-14	Gravelly loam	GM, ML, SC, SM	A-4	0	0-5	60-95	50-95	45-95	35-75	15-20	NP-10
	>14	Weathered bedrock			---	---	---	---	---	---	---	---
Ch:												
Caruso	0-16	Loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	65-90	25-40	5-20
	16-60	Loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	95-100	65-85	25-45	5-20
Co:												
Colby	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	5-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
COC:												
Colby	0-6	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	6-12	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	12-30	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
	30-60	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	30-35	5-10
Cp:												
Colby	0-5	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	5-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Ec:												
Elkader	0-10	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	65-90	25-45	7-20
	10-18	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
	18-60	Silt loam	CL, ML	A-4, A-6, A-7-6	0	0	95-100	85-100	80-100	70-95	25-50	7-20
Gb:												
Glenberg	0-30	Sandy loam	SM	A-2, A-4	0	0	95-100	85-100	60-100	30-45	---	NP
	30-60	Stratified loamy sand to clay loam	SM	A-2, A-4	0	0	90-100	75-100	50-100	25-40	---	NP
Go:												
Goshen	0-16	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	70-95	20-40	3-20
	16-39	Silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	85-95	25-40	8-22
	39-60	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-35	4-15
Ke:												
Keith	0-9	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	85-100	20-35	2-10
	9-24	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	85-100	30-45	10-25
	24-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	20-35	2-12
Ko:												
Kim	0-6	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	80-100	75-100	60-90	55-75	20-30	NP-10
	6-60	Clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	75-100	50-95	35-85	20-40	5-15
Otero	0-5	Sandy loam	SM	A-2	0	0-1	95-100	75-100	50-80	25-35	20-25	NP-5
	5-60	Sandy loam	SM	A-2	0	0-1	90-100	75-100	40-80	25-35	15-25	NP-5
Ku:												
Kuma	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	95-100	90-100	75-95	25-40	NP-15
	8-25	Silty clay loam	CL	A-4, A-6, A-7	0	0	100	95-100	90-100	85-95	30-45	10-25
	25-60	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	95-100	90-100	75-95	20-40	NP-15
Lm:												
Limon	0-4	Silty clay	CH, CL	A-7	0	0	100	95-100	95-100	70-90	40-60	20-40
	4-60	Silty clay	CH, CL	A-6, A-7	0	0	100	95-100	95-100	75-95	35-60	20-40
Mc:												
Manter	0-16	Fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	45-85	25-55	20-30	NP-10
	16-36	Sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	50-85	30-55	15-25	NP-10
	36-60	Sandy loam	SM	A-1, A-2, A-4	0	0	95-100	75-100	40-85	15-50	---	NP
Mh:												
Midway	0-4	Clay	CH, CL	A-7	0	0	75-100	75-100	70-100	70-95	40-60	20-35
	4-12	Clay	CL	A-6, A-7	0	0	95-100	95-100	90-100	70-95	35-50	15-25
	>12	Weathered bedrock			---	---	---	---	---	---	---	---
Po:												
Pleasant	0-10	Silty clay loam	CL	A-7, A-6	0	0	100	100	95-100	95-100	35-50	15-25
	10-52	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	40-65	20-45
	52-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	80-100	25-40	NP-15
Rc:												
Razor	0-6	Clay	CH, CL	A-7	0	0-5	95-100	95-100	85-100	80-100	40-60	20-40
	6-24	Clay	CH, CL	A-6, A-7	0	0	100	100	90-100	80-100	35-60	20-45
	24-32	Clay	CH, CL	A-6, A-7	0	0	90-100	90-100	80-100	75-100	35-60	20-45
	>32	Weathered bedrock			---	---	---	---	---	---	---	---
Sc:												
Satanta	0-12	Loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-75	20-35	5-15
	12-22	Clay loam	CL, SC	A-6, A-7	0	0	100	95-100	75-100	40-80	30-45	11-20
	22-60	Loam	CL, SC	A-4, A-6	0	0	100	95-100	65-100	40-80	20-35	5-15
Se:												
Sweetwater	0-24	Clay loam	CL, CL-ML, SC	A-4, A-6	0	0	100	95-100	80-95	40-70	25-40	7-20
	24-60	Loamy fine sand	SM	A-2	0	0	95-100	90-100	50-80	15-35	15-22	NP-2
Ua:												
Ulysses	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	10-19	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	19-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15

ENGINEERING INDEX PROPERTIES--Continued
Wallace County, Kansas

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ub:												
Ulysses--------	0-10	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	10-30	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	30-52	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Uc:												
Ulysses--------	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	10-19	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	19-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Us:												
Ulysses--------	0-10	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	10-19	Silt loam	CL	A-6, A-7	0	0	100	100	90-100	85-100	25-43	11-20
	19-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
Colby----------	0-4	Loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
	4-60	Silt loam	CL, ML	A-4, A-6	0	0	100	100	90-100	85-100	25-40	3-15
W:												
Water----------	---	---	---	---	---	---	---	---	---	---	---	---

PHYSICAL PROPERTIES OF THE SOILS
Wallace County, Kansas

Physical Properties table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth moving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table,the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K<->sat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K<->sat). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In Physical Properties table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the Physical Properties table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to

PHYSICAL PROPERTIES OF THE SOILS--Continued
Wallace County,
Kansas

wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and forzen soil layers also influence wind erosion.

Explanation of Wind Erodibility Groups

Soil erodibility by wind is directly related to the percentage of dry non-erodible surface soil aggregates larger than 0.84 mm in diameter. From this percentage, the wind erodibility index (I-factor) is determined. The I-factor is an expression of the stability of these soil aggregates against breakdown by tillage and abrasion from wind erosion. Soils are placed in Wind Erodibility Groups (WEG) having similar percentages of dry soil aggregates larger than 0.84 mm as shown in the following table.

WEG	Properties of Soil Surface Layer	Dry Soil Aggregates >0.84mm Percent	Wind Erodibilty Index T/Ac/Yr (I)
1	Very fine sand, fine sand, sand, or coarse sand	1	310 1/
		2	250
		3	220
		5	180
		7	160
2	Loamy very fine sand, loamy fine sand, loamy sand, loamy coarse sand, organic soil materials.	10	134
3	Very fine sandy loam, fine sandy loam, sandy loam, or coarse sandy loam.	25	86
4	Clay, silty clay, non-calcareous clay loam, or silty clay loam with >35 percent clay content.	25	86
4L	Calcareous 2/ loam, silt loam, clay loam, or silty clay loam.	25	86
5	Non-calcareous loam and silt loam with <20 percent clay content, or sandy clay loam, sandy clay, and hemic 3/ organic soil materials.	40	56
6	Non-calcareous loam and silt loam with >20 percent clay content, or non-calcareous clay loam with <35 percent clay content.	45	48
7	Silt, non-calcareous silty clay loam with >35 percent clay content and fibric 3/ organic soil material.	50	38
8	Soils not suitable for cultivation due to coarse fragments or wetness; wind erosion is not a problem.	--	0

1/ The "I" values for WEG 1 vary from 160 for coarse sands to 310 for very fine sands. Use an "I" of 220 as an average figure. For coarser sand that has gravel, use a lower figure. For a soil that has no gravel and very fine sand, use a higher figure. (Modification for coarse fragments is preparation.)

2/ Calcareous is a strongly or violently effervescent reaction to cold dilute (1N) HCL.

3/ See Soil Taxonomy for definition.

PHYSICAL PROPERTIES OF THE SOILS--Continued
Wallace County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
063GB:														
Glenberg-----	0-4	66	20	10-18	1.35-1.50	2.00-6.00	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	4-13	67	20	8-18	1.35-1.50	2.00-6.00	0.10-0.15	0.0-2.9	0.5-1.0	.28	.28			
	13-21	67	20	8-18	1.35-1.60	1.98-19.98	0.06-0.15	0.0-2.9	0.0-1.0	.28	.28			
	21-60	83	4	8-18	1.35-1.60	1.98-19.98	0.06-0.15	0.0-2.9	0.0-1.0	.28	.28			
Bankard------	0-4	85	9	2-10	1.45-1.60	6.00-19.99	0.06-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	4-60	94	1	0-10	1.75-1.85	6.00-19.99	0.05-0.08	0.0-2.9	0.5-1.0	.17	.17			
063KM:														
Kimst--------	0-6	39	37	21-27	1.25-1.40	0.60-2.00	0.14-0.18	0.0-2.9	0.5-2.0	.37	.37	5	4L	86
	6-12	37	35	20-35	1.25-1.40	0.60-2.00	0.14-0.21	0.0-2.9	0.0-0.5	.28	.28			
	12-60	37	35	20-35	1.25-1.40	0.60-2.00	0.14-0.21	0.0-2.9	0.0-0.5	.28	.28			
063KR:														
Kuma---------	0-5	9	67	20-27	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	1.0-4.0	.37	.37	5	6	48
	5-9	7	64	22-35	1.15-1.30	0.60-2.00	0.15-0.21	0.0-2.9	1.0-2.0	.28	.28			
	9-16	7	64	22-35	1.15-1.30	0.60-2.00	0.15-0.21	0.0-2.9	1.0-2.0	.28	.28			
	16-19	7	64	22-35	1.15-1.30	0.60-2.00	0.15-0.21	0.0-2.9	1.0-2.0	.28	.28			
	19-24	7	63	25-35	1.15-1.30	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.32	.32			
	24-34	7	63	25-35	1.15-1.30	0.60-2.00	0.15-0.21	0.0-2.9	0.5-2.0	.32	.32			
	34-43	11	68	16-25	1.25-1.30	0.57-5.95	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	43-56	11	68	16-25	1.25-1.30	0.57-5.95	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
	56-61	11	68	16-25	1.25-1.30	0.57-5.95	0.14-0.20	0.0-2.9	0.5-1.0	.37	.37			
Keith--------	0-6	11	67	18-25	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	6-9	9	61	26-35	1.15-1.30	0.60-2.00	0.15-0.21	3.0-5.9	1.0-2.0	.32	.32			
	9-17	7	63	26-35	1.15-1.30	0.60-2.00	0.15-0.21	3.0-5.9	0.5-2.0	.32	.32			
	17-24	7	63	27-34	1.15-1.30	0.60-2.00	0.17-0.21	0.0-2.9	0.5-1.0	.32	.32			
	24-34	11	67	18-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	34-41	11	67	18-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	41-47	11	67	18-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	47-60	11	67	18-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
109EB:														
Elkader------	0-15	11	68	15-27	1.20-1.35	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	4	4L	86
	15-23	9	64	18-35	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.49			
	23-60	9	64	18-35	1.25-1.40	0.60-2.00	0.15-0.22	0.0-2.9	---	.43	.49			
109EC:														
Elkader------	0-15	11	68	15-27	1.20-1.35	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	4	4L	86
	15-23	9	64	18-35	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.49			
	23-60	9	64	18-35	1.25-1.40	0.60-2.00	0.15-0.22	0.0-2.9	---	.43	.49			
181RH:														
Kim----------	0-6	42	37	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32	5	4L	86
	6-60	35	38	20-35	1.40-1.50	0.60-2.00	0.15-0.17	0.0-2.9	---	.32	.32			
Otero--------	0-5	66	19	10-20	1.40-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	5-60	65	23	5-18	1.45-1.50	2.00-6.00	0.08-0.12	0.0-2.9	---	.24	.24			
181UC:														
Ulysses------	0-10	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	10-30	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	---	.43	.43			
	30-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	---	.43	.43			
181UD:														
Ulysses------	0-11	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	11-20	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	---	.43	.43			
	20-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	---	.43	.43			
Colby--------	0-4	11	68	15-27	1.20-1.30	0.60-2.00	0.20-0.24	0.0-2.9	0.5-2.0	.43	.43	5	4L	86
	4-60	10	68	18-27	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Bb:														
Bankard------	0-5	85	9	2-10	1.80-1.95	6.00-20.00	0.10-0.15	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	5-60	64	31	0-10	1.85-2.00	6.00-20.00	0.07-0.14	0.0-2.9	0.0-1.0	.17	.32			
Bc:														
Bankard------	0-5	68	20	5-20	1.50-1.60	2.00-6.00	0.13-0.15	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	5-60	64	30	2-10	1.55-1.65	6.00-20.00	0.05-0.08	0.0-2.9	---	.20	.37			
Bo:														
Bridgeport---	0-16	37	42	14-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	4L	86
	16-60	9	67	18-30	1.35-1.50	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Bp:														
Bridgeport---	0-13	11	68	14-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	4L	86
	13-60	9	67	18-30	1.35-1.50	0.60-2.00	0.20-0.24	0.0-2.9	0.5-1.0	.43	.43			
Br:														
Bridgeport---	0-12	11	68	14-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	4L	86
	12-60	9	67	18-30	1.35-1.50	0.60-2.00	0.20-0.24	0.0-2.9	---	.43	.43			
Bs:														
Bridgeport---	0-6	11	68	14-27	1.30-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-4.0	.32	.32	5	4L	86
	6-60	9	67	18-30	1.35-1.50	0.60-2.00	0.20-0.24	0.0-2.9	---	.43	.43			
Arvada-------	0-2	36	34	20-40	1.10-1.20	0.20-2.00	0.07-0.12	3.0-5.9	1.0-3.0	.32	.32	2	4L	86
	2-22	6	44	40-60	1.15-1.25	0.00-0.06	0.07-0.12	6.0-8.9	---	.37	.37			
	22-60	20	55	20-30	1.20-1.30	0.60-2.00	0.07-0.12	3.0-5.9	---	.32	.32			
Cd:														
Canyon-------	0-4	44	40	12-20	1.20-1.30	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.32	.37	2	4L	86
	4-14	43	38	12-25	1.30-1.50	0.60-2.00	0.13-0.18	0.0-2.9	---	.24	.64			
	>14			---	---	---	---	---	---	---	---			
Ch:														
Caruso-------	0-16	40	38	18-27	1.30-1.40	0.60-2.00	0.19-0.23	0.0-2.9	1.0-4.0	.28	.28	5	4L	86
	16-60	38	36	18-35	1.35-1.50	0.20-2.00	0.16-0.22	0.0-2.9	---	.32	.32			
Co:														
Colby--------	0-5	11	68	15-27	1.20-1.30	0.60-2.00	0.20-0.24	0.0-2.9	0.5-2.0	.43	.43	5	4L	86
	5-60	10	68	18-27	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			

PHYSICAL PROPERTIES OF THE SOILS--Continued
Wallace County, Kansas: Published

(Single entries under "Sand and Silt" are a representative percentage are calculated using an algorithm. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										K	Kf	T		
	In	Pct	Pct	Pct	g/cc	in/hr	In/in	Pct	Pct					
COC:														
Colby--------	0-6	10	68	19-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.43	.43	5	4L	86
	6-12	10	68	19-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-2.0	.43	.43			
	12-30	10	68	19-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	30-60	10	68	19-26	1.15-1.30	0.60-2.00	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
Cp:														
Colby--------	0-5	11	68	15-27	1.20-1.30	0.60-2.00	0.20-0.24	0.0-2.9	0.5-2.0	.43	.43	5	4L	86
	5-60	10	68	18-27	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Ec:														
Elkader------	0-10	11	68	15-27	1.20-1.35	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	4	4L	86
	10-18	9	64	18-35	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.49			
	18-60	9	64	18-35	1.25-1.40	0.60-2.00	0.15-0.22	0.0-2.9	---	.43	.49			
Gb:														
Glenberg-----	0-30	66	19	10-20	1.45-1.50	2.00-6.00	0.09-0.13	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	30-60			8-18	1.45-1.50	2.00-6.00	0.07-0.12	0.0-2.9	---	.15	.15			
Go:														
Goshen-------	0-16	11	68	16-25	1.20-1.40	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	16-39	7	63	25-35	1.30-1.50	0.60-2.00	0.17-0.22	3.0-5.9	---	.43	.43			
	39-60	11	68	15-27	1.20-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
Ke:														
Keith--------	0-9	11	68	15-27	1.20-1.30	0.60-2.00	0.20-0.23	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	9-24	7	65	20-35	1.10-1.20	0.60-2.00	0.18-0.22	3.0-5.9	---	.28	.28			
	24-60	14	71	10-20	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	---	.43	.43			
Ko:														
Kim----------	0-6	42	37	15-27	1.30-1.40	0.60-2.00	0.16-0.18	0.0-2.9	0.5-1.0	.32	.32	5	4L	86
	6-60	35	38	20-35	1.40-1.50	0.60-2.00	0.15-0.17	0.0-2.9	---	.32	.32			
Otero--------	0-5	66	19	10-20	1.40-1.45	2.00-6.00	0.11-0.13	0.0-2.9	0.5-2.0	.24	.24	5	3	86
	5-60	65	23	5-18	1.45-1.50	2.00-6.00	0.08-0.12	0.0-2.9	---	.24	.24			
Ku:														
Kuma---------	0-8	11	68	15-27	1.20-1.30	0.60-2.00	0.18-0.21	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	8-25	7	66	18-35	1.25-1.35	0.60-2.00	0.18-0.21	3.0-5.9	0.6-3.0	.37	.37			
	25-60	8	72	10-30	1.40-1.50	0.60-2.00	0.16-0.18	0.0-2.9	0.0-1.0	.32	.32			
Lm:														
Limon--------	0-4	5	45	40-60	1.30-1.40	0.20-0.60	0.14-0.17	6.0-8.9	0.5-1.0	.24	.24	5	4	86
	4-60	6	47	35-60	1.35-1.45	0.06-0.20	0.12-0.16	6.0-8.9	---	.32	.32			
Mc:														
Manter-------	0-16	65	20	10-20	1.35-1.40	2.00-6.00	0.12-0.16	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	16-36	67	20	9-18	1.40-1.50	2.00-6.00	0.11-0.14	0.0-2.9	---	.24	.24			
	36-60	67	23	5-15	1.45-1.60	2.00-6.00	0.08-0.14	0.0-2.9	---	.17	.17			
Mh:														
Midway-------	0-4	22	28	40-60	1.25-1.35	0.06-0.20	0.14-0.18	6.0-8.9	0.5-2.0	.37	.37	2	4	86
	4-12	30	30	35-45	1.20-1.35	0.06-0.20	0.14-0.18	6.0-8.9	---	.43	.43			
	>12			---	---	---	---	---	---	---	---			
Po:														
Pleasant-----	0-10	19	48	27-40	1.10-1.30	0.20-0.60	0.19-0.21	3.0-5.9	2.0-5.0	.37	.37	5	7	38
	10-52	8	52	35-45	1.10-1.30	0.00-0.06	0.14-0.18	6.0-8.9	---	.28	.28			
	52-60	24	50	20-32	1.10-1.30	0.60-2.00	0.18-0.20	0.0-2.9	---	.43	.43			
Rc:														
Razor--------	0-6	26	29	40-50	1.35-1.40	0.06-0.20	0.15-0.18	6.0-8.9	0.5-2.0	.37	.37	3	4	86
	6-24	23	29	35-60	1.30-1.40	0.06-0.20	0.15-0.18	6.0-8.9	0.0-1.0	.32	.32			
	24-32	23	29	35-60	1.30-1.40	0.06-0.20	0.15-0.18	6.0-8.9	0.5-0.5	.32	.32			
	>32			---	---	---	---	---	---	---	---			
Sc:														
Satanta------	0-12	43	40	10-25	1.30-1.40	0.60-2.00	0.20-0.22	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	12-22	35	38	18-35	1.35-1.45	0.60-2.00	0.15-0.19	3.0-5.9	0.5-1.0	.32	.32			
	22-60	43	38	10-28	1.35-1.50	0.60-2.00	0.16-0.19	0.0-2.9	0.5-1.0	.32	.32			
Se:														
Sweetwater---	0-24	35	38	18-35	1.35-1.55	0.20-0.60	0.16-0.20	0.0-2.9	1.0-4.0	.28	.28	4	7	38
	24-60	84	6	3-15	1.50-1.70	5.95-19.98	0.04-0.10	0.0-2.9	---	.17	.17			
Ua:														
Ulysses------	0-10	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	10-19	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	---	.43	.43			
	19-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	---	.43	.43			
Ub:														
Ulysses------	0-10	12	70	10-27	1.15-1.25	0.60-2.00	0.22-0.24	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	10-30	9	64	21-32	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43			
	30-52	10	68	18-27	1.25-1.35	0.60-2.00	0.17-0.22	0.0-2.9	0.0-0.5	.43	.43			
Uc:														
Ulysses------	0-10	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	10-19	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	---	.43	.43			
	19-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	---	.43	.43			
Us:														
Ulysses------	0-10	12	70	10-27	1.15-1.25	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	10-19	9	64	21-32	1.20-1.35	0.60-2.00	0.18-0.22	3.0-5.9	---	.43	.43			
	19-60	10	68	18-27	1.25-1.35	0.60-2.00	0.18-0.22	0.0-2.9	---	.43	.43			
Colby--------	0-4	37	42	15-27	1.20-1.30	0.60-2.00	0.20-0.24	0.0-2.9	0.5-2.0	.43	.43	5	4L	86
	4-60	10	68	18-27	1.25-1.40	0.60-2.00	0.17-0.22	0.0-2.9	---	.43	.43			
W:														
Water--------	---			---	---	---	---	---	---	---	---	-	---	---

CHEMICAL PROPERTIES OF THE SOILS
Wallace County, Kansas

The Chemical Properties table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils. Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. Soils having a high cation-exchange capacity can retain cations. The ability to retain cations helps to prevent the pollution of ground water.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Gypsum is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water and can be dissolved and removed by water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

CHEMICAL PROPERTIES OF THE SOILS--Continued
Wallace County, Kansas

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
063GB:							
Glenberg--------	0-4	5.0-15	7.4-8.4	0-5	0	0	0
	4-13	4.0-15	7.4-8.4	1-10	0	0	0
	13-21	3.0-15	7.4-9.0	1-10	0	0.0-2.0	0
	21-60	3.0-15	7.4-9.0	1-10	0	0.0-2.0	0
Bankard---------	0-4	2.0-10	7.4-8.4	0-5	0	0	0
	4-60	1.0-10	7.4-8.4	0-5	0	0	0
063KM:							
Kimst-----------	0-6	10-20	7.4-8.4	5-10	0	0	0
	6-12	5.0-20	7.9-8.4	5-15	0	0.0-4.0	0
	12-60	5.0-20	7.9-8.4	5-15	0	0.0-4.0	0
063KR:							
Kuma------------	0-5	10-25	6.6-7.8	0	0	0	0
	5-9	10-25	6.6-7.8	0	0	0	0
	9-16	10-25	6.6-7.8	0	0	0	0
	16-19	10-25	6.6-7.8	0	0	0	0
	19-24	10-25	7.9-8.4	1-10	0	0	0
	24-34	10-25	7.9-8.4	1-10	0	0	0
	34-43	5.0-15	7.9-9.0	1-10	0	0	0
	43-56	5.0-15	7.9-9.0	1-10	0	0	0
	56-61	5.0-15	7.9-9.0	1-10	0	0	0
Keith-----------	0-6	10-20	6.6-7.8	0	0	0	0
	6-9	10-25	6.6-7.8	0	0	0	0
	9-17	10-25	6.6-7.8	0	0	0	0
	17-24	10-20	7.9-8.4	3-15	0	0	0
	24-34	5.0-20	7.9-8.4	3-15	0	0	0
	34-41	5.0-20	7.9-8.4	3-15	0	0	0
	41-47	5.0-20	7.9-8.4	3-15	0	0	0
	47-60	5.0-20	7.9-8.4	3-15	0	0	0
109EB:							
Elkader---------	0-15	6.0-18	7.4-8.4	5-15	---	---	---
	15-23	7.0-21	7.9-8.4	10-25	---	---	---
	23-60	7.0-21	7.9-9.0	15-50	---	2.0-16.0	---
109EC:							
Elkader---------	0-15	6.0-18	7.4-8.4	5-15	---	---	---
	15-23	7.0-21	7.9-8.4	10-25	---	---	---
	23-60	7.0-21	7.9-9.0	15-50	---	2.0-16.0	---
181RH:							
Kim---------------	0-6	6.0-17	7.4-8.4	0-5	---	0	---
	6-60	8.0-21	7.9-8.4	5-15	---	0.0-4.0	---
Otero------------	0-5	4.0-13	7.4-8.4	0-15	0	0.0-2.0	0
	5-60	2.0-11	7.4-8.4	0-15	0	0.0-4.0	0
181UC:							
Ulysses----------	0-10	4.0-18	6.6-7.8	---	---	---	---
	10-30	8.0-19	7.4-8.4	0-15	---	---	---
	30-60	7.0-16	7.9-8.4	0-15	---	---	---
181UD:							
Ulysses----------	0-11	4.0-18	6.6-7.8	---	---	---	---
	11-20	8.0-19	7.4-8.4	0-15	---	---	---
	20-60	7.0-16	7.9-8.4	0-15	---	---	---
Colby------------	0-4	6.0-18	7.4-8.4	0-5	---	---	---
	4-60	7.0-16	7.4-8.4	5-15	---	---	---
Bb:							
Bankard---------	0-5	1.0-7.0	7.4-8.4	0-5	---	---	---
	5-60	0.0-7.0	7.4-9.0	0-5	0	---	---
Bc:							
Bankard---------	0-5	2.0-13	7.4-8.4	0-5	0	0	0
	5-60	0.0-6.0	7.4-8.4	0-5	0	0	0
Bo:							
Bridgeport------	0-16	6.0-19	6.6-8.4	0-5	0	0	0
	16-60	7.0-18	7.4-8.4	5-10	0	0	0
Bp:							
Bridgeport------	0-13	6.0-19	6.6-8.4	0-5	0	0	0
	13-60	7.0-18	7.4-8.4	5-10	0	0	0
Br:							
Bridgeport------	0-12	6.0-19	6.6-8.4	0-5	0	0	0
	12-60	7.0-18	7.4-8.4	5-10	0	0	0

CHEMICAL PROPERTIES OF THE SOILS--Continued
Wallace County, Kansas

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Bs:							
Bridgeport------	0-6	6.0-19	6.6-8.4	0-5	0	0	0
	6-60	7.0-18	7.4-8.4	5-10	0	0	0
Arvada----------	0-2	8.0-26	7.8-9.6	0-5	---	4.0-16.0	---
	2-22	16-36	8.4-9.6	0-10	---	4.0-16.0	---
	22-60	8.0-18	7.4-8.4	0-10	---	4.0-16.0	---
Cd:							
Canyon----------	0-4	5.0-13	7.4-8.4	5-15	0	0.0-2.0	0
	4-14	4.0-15	7.4-8.4	20-40	0	0.0-2.0	0
	>14	---	---	---	---	---	---
Ch:							
Caruso----------	0-16	7.0-19	7.4-8.4	0-5	0	0.0-4.0	0
	16-60	7.0-21	7.4-8.4	0-5	0	0.0-4.0	0
Co:							
Colby----------	0-5	6.0-18	7.4-8.4	0-5	---	---	---
	5-60	7.0-16	7.4-8.4	5-15	---	---	---
COC:							
Colby----------	0-6	10-20	7.9-8.4	5-10	0	0	0
	6-12	10-20	7.9-8.4	5-10	0	0	0
	12-30	5.0-15	7.9-8.4	5-10	0	0	0
	30-60	5.0-15	7.9-8.4	5-10	0	0	0
Cp:							
Colby----------	0-5	6.0-18	7.4-8.4	0-5	---	---	---
	5-60	7.0-16	7.4-8.4	5-15	---	---	---
Ec:							
Elkader---------	0-10	6.0-18	7.4-8.4	5-15	---	---	---
	10-18	7.0-21	7.9-8.4	10-25	---	---	---
	18-60	7.0-21	7.9-9.0	15-50	---	2.0-16.0	---
Gb:							
Glenberg--------	0-30	4.0-13	7.4-8.4	0-5	0	0	0
	30-60	3.0-11	7.4-9.0	0-5	0	0.0-2.0	0
Go:							
Goshen----------	0-16	6.0-17	6.1-7.8	0	0	0	0
	16-39	10-21	6.6-8.4	0-10	0	0	0
	39-60	6.0-16	7.4-8.4	0-10	0	0	0
Ke:							
Keith----------	0-9	6.0-18	6.1-7.8	0	0	0	0
	9-24	0.0-21	6.6-8.4	0-5	0	0	0
	24-60	4.0-12	7.4-8.4	0-15	0	0	0
Ko:							
Kim---------	0-6	6.0-17	7.4-8.4	0-5	---	0	---
	6-60	8.0-21	7.9-8.4	5-15	---	0.0-4.0	---
Otero----------	0-5	4.0-13	7.4-8.4	0-15	0	0.0-2.0	0
	5-60	2.0-11	7.4-8.4	0-15	0	0.0-4.0	0
Ku:							
Kuma----------	0-8	6.0-19	6.1-8.4	---	---	---	---
	8-25	7.0-23	6.6-8.4	0-5	---	---	---
	25-60	4.0-19	7.9-9.0	0-15	---	0.0-2.0	---
Lm:							
Limon----------	0-4	16-37	7.4-8.4	0-5	0	2.0-8.0	0
	4-60	14-36	7.9-9.0	5-15	---	2.0-8.0	---
Mc:							
Manter----------	0-16	4.0-15	6.6-7.8	0	0	0	0
	16-36	3.0-11	6.6-7.8	0	0	0	0
	36-60	2.0-9.0	7.9-8.4	0-5	0	0.0-2.0	0
Mh:							
Midway----------	0-4	16-37	6.6-8.4	0-5	---	2.0-4.0	---
	4-12	14-27	7.9-9.0	0-5	---	2.0-8.0	---
	>12	---	---	---	---	---	---
Po:							
Pleasant--------	0-10	11-27	6.6-7.3	---	---	0	---
	10-52	14-27	6.6-7.8	---	---	0	---
	52-60	8.0-19	7.4-8.4	0-2	---	0.0-2.0	---
Rc:							
Razor----------	0-6	16-31	6.6-8.4	0-5	---	0.0-2.0	0-10
	6-24	14-37	7.4-8.4	0-10	---	0.0-2.0	0-10
	24-32	14-36	7.4-8.4	1-15	0-5	8.0-16.0	10-15
	>32	---	---	---	---	---	---

CHEMICAL PROPERTIES OF THE SOILS--Continued
Wallace County, Kansas

Map symbol and soil name	Depth	Cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity	Sodium adsorption ratio
	In	meq/100g	pH	Pct	Pct	mmhos/cm	
Sc:							
Satanta---------	0-12	4.0-16	6.1-7.8	---	---	---	---
	12-22	7.0-22	6.6-8.4	0-5	---	---	---
	22-60	4.0-18	7.4-8.4	0-10	---	---	---
Se:							
Sweetwater------	0-24	7.0-24	7.4-8.4	0-5	0	0	0
	24-60	1.0-9.0	7.9-8.4	0-5	0	0	0
Ua:							
Ulysses---------	0-10	4.0-18	6.6-7.8	---	---	---	---
	10-19	8.0-19	7.4-8.4	0-15	---	---	---
	19-60	7.0-16	7.9-8.4	0-15	---	---	---
Ub:							
Ulysses---------	0-10	4.0-18	6.6-7.8	---	---	---	---
	10-30	8.0-19	7.4-8.4	5-10	---	---	---
	30-52	7.0-16	7.9-8.4	10-15	---	---	---
Uc:							
Ulysses---------	0-10	4.0-18	6.6-7.8	---	---	---	---
	10-19	8.0-19	7.4-8.4	0-15	---	---	---
	19-60	7.0-16	7.9-8.4	0-15	---	---	---
Us:							
Ulysses---------	0-10	4.0-18	6.6-7.8	---	---	---	---
	10-19	8.0-19	7.4-8.4	0-15	---	---	---
	19-60	7.0-16	7.9-8.4	0-15	---	---	---
Colby------------	0-4	6.0-18	7.4-8.4	0-5	---	---	---
	4-60	7.0-16	7.4-8.4	5-15	---	---	---
W:							
Water------------	---	---	---	---	---	---	---

WATER FEATURES
Wallace County, Kansas

The Water Features table gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The months in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The Water Features table indicates, by month, depth to the top (upper limit) and base (lower limit) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table. Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The Water Features table indicates surface water depth and the duration and frequency of ponding. Duration is expressed as very brief if less than 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. None means that ponding is not probable; rare that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); occasional that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and frequent that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as extremely brief if 0.1 hour to 4 hours, very brief if 4 hours to 2 days, brief if 2 to 7 days, long if 7 to 30 days, and very long if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. None means that flooding is not probable; very rare that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); rare that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); occasional that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); frequent that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and very frequent that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

WATER FEATURES--Continued
Wallace County, Kansas

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
063GB:									
Glenberg	B								
		March	---	---	---	---	---	Brief	Rare
		April	---	---	---	---	---	Brief	Rare
		May	---	---	---	---	---	Brief	Rare
		June	---	---	---	---	---	Brief	Rare
		July	---	---	---	---	---	Brief	Rare
		August	---	---	---	---	---	Brief	Rare
		September	---	---	---	---	---	Brief	Rare
Bankard	A								
		March	---	---	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
063KM:									
Kimst	B		---	---	---	---	---	---	---
063KR:									
Kuma	B		---	---	---	---	---	---	---
Keith	B		---	---	---	---	---	---	---
109EB:									
Elkader	B		---	---	---	---	---	---	---
109EC:									
Elkader	B		---	---	---	---	---	---	---
181RH:									
Kim	B		---	---	---	---	---	---	---
Otero	B		---	---	---	---	---	---	---
181UC:									
Ulysses	B		---	---	---	---	---	---	---
181UD:									
Ulysses	B		---	---	---	---	---	---	---
Colby	B		---	---	---	---	---	---	---
Bb:									
Bankard	A								
		March	---	---	---	---	---	Very brief	Occasional
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
Bc:									
Bankard	A								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Bo:									
Bridgeport	B								
		April	---	---	---	---	---	Very brief	Occasional
		May	---	---	---	---	---	Very brief	Occasional
		June	---	---	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
Bp:									
Bridgeport	B								
		March	---	---	---	---	---	Very brief	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	Very brief	Rare
Br:									

WATER FEATURES--Continued
Wallace County, Kansas

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Bridgeport	B		---	---	---	---	---	---	---
Bs:									
Bridgeport	B								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Arvada	D								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Cd:									
Canyon	D		---	---	---	---	---	---	---
Ch:									
Caruso	C								
		March	2.0-3.0	>6.0	---	---	---	---	None
		April	2.0-3.0	>6.0	---	---	---	Very brief	Occasional
		May	2.0-3.0	>6.0	---	---	---	Very brief	Occasional
		June	2.0-3.0	>6.0	---	---	---	Very brief	Occasional
		July	---	---	---	---	---	Very brief	Occasional
		August	---	---	---	---	---	Very brief	Occasional
		September	---	---	---	---	---	Very brief	Occasional
Co:									
Colby	B		---	---	---	---	---	---	---
COC:									
Colby	B		---	---	---	---	---	---	---
Cp:									
Colby	B		---	---	---	---	---	---	---
Ec:									
Elkader	B		---	---	---	---	---	---	---
Gb:									
Glenberg	B								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Go:									
Goshen	B								
		January	---	---	---	---	---	---	Rare
		February	---	---	---	---	---	---	Rare
		March	---	---	---	---	---	---	Rare
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
		October	---	---	---	---	---	---	Rare
		November	---	---	---	---	---	---	Rare
		December	---	---	---	---	---	---	Rare
Ke:									
Keith	B		---	---	---	---	---	---	---

WATER FEATURES--Continued
Wallace County, Kansas

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydrologic group	Month	Soil Saturation		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft	Ft				
Ko:									
Kim	B		---	---	---	---	---	---	---
Otero	B		---	---	---	---	---	---	---
Ku:									
Kuma	B		---	---	---	---	---	---	---
Lm:									
Limon	C								
		April	---	---	---	---	---	Very brief	Rare
		May	---	---	---	---	---	Very brief	Rare
		June	---	---	---	---	---	Very brief	Rare
		July	---	---	---	---	---	Very brief	Rare
		August	---	---	---	---	---	Very brief	Rare
		September	---	---	---	---	---	Very brief	Rare
Mc:									
Manter	B		---	---	---	---	---	---	---
Mh:									
Midway	D		---	---	---	---	---	---	---
Po:									
Pleasant	D								
		April	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
		May	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
		June	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
		July	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
		August	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
		September	0.0	>6.0	0.0-2.0	Long	Occasional	---	None
Rc:									
Razor	C		---	---	---	---	---	---	---
Sc:									
Satanta	B		---	---	---	---	---	---	---
Se:									
Sweetwater	D								
		January	0.5-3.0	>6.0	---	---	---	---	None
		February	0.5-3.0	>6.0	---	---	---	---	None
		March	0.5-3.0	>6.0	---	---	---	---	None
		April	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		May	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		June	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		July	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		August	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		September	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		October	0.5-3.0	>6.0	---	---	---	Brief	Occasional
		November	0.5-3.0	>6.0	---	---	---	---	None
		December	0.5-3.0	>6.0	---	---	---	---	None
Ua:									
Ulysses	B		---	---	---	---	---	---	---
Ub:									
Ulysses	B		---	---	---	---	---	---	---
Uc:									
Ulysses	B		---	---	---	---	---	---	---
Us:									
Ulysses	B		---	---	---	---	---	---	---
Colby	B		---	---	---	---	---	---	---
W:									
Water	---		---	---	---	---	---	---	---

SOIL FEATURES
Wallace County, Kansas

The following table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A restrictive layer is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. Depth to top is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

SOIL FEATURES--Continued
Wallace County, Kansas

Map symbol and soil name	Restrictive layer				Potential for Frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated Steel	Concrete
		In	In				
063GB:							
Glenberg	---	---	---	---	Low	High	Low
Bankard	---	---	---	---	Low	Moderate	Low
063KM:							
Kimst	---	---	---	---	Low	High	Low
063KR:							
Kuma	---	---	---	---	Low	High	Low
Keith	---	---	---	---	Moderate	High	Low
109EB:							
Elkader	---	---	---	---	Moderate	Low	Low
109EC:							
Elkader	---	---	---	---	Moderate	Low	Low
181RH:							
Kim	---	---	---	---	Low	High	Low
Otero	---	---	---	---	Low	High	Low
181UC:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
181UD:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
Colby	---	---	---	---	Low	Low	Low
Bb:							
Bankard	---	---	---	---	Low	Moderate	Low
Bc:							
Bankard	---	---	---	---	Low	Moderate	Low
Bo:							
Bridgeport	---	---	---	---	Moderate	Low	Low
Bp:							
Bridgeport	---	---	---	---	Moderate	Low	Low
Br:							
Bridgeport	---	---	---	---	Moderate	Low	Low
Bs:							
Bridgeport	---	---	---	---	Moderate	Low	Low
Arvada	---	---	---	---	Low	High	High
Cd:							
Canyon	6-20	Bedrock (paralithic)	---	Weakly cemented	Low	High	Low
Ch:							
Caruso	---	---	---	---	Moderate	High	Moderate
Co:							
Colby	---	---	---	---	Low	Low	Low
COC:							
Colby	---	---	---	---	Moderate	High	Low
Cp:							
Colby	---	---	---	---	Low	Low	Low
Ec:							
Elkader	---	---	---	---	Moderate	Low	Low
Gb:							
Glenberg	---	---	---	---	Low	High	Low
Go:							
Goshen	---	---	---	---	Moderate	High	Low
Ke:							
Keith	---	---	---	---	Moderate	Moderate	Low
Ko:							
Kim	---	---	---	---	Low	High	Low
Otero	---	---	---	---	Low	High	Low
Ku:							
Kuma	---	---	---	---	Moderate	High	Moderate
Lm:							
Limon	---	---	---	---	Low	High	Moderate
Mc:							
Manter	---	---	---	---	Moderate	High	Low
Mh:							
Midway	6-20	Bedrock (paralithic)	---	Weakly cemented	Low	High	Low
Po:							
Pleasant	---	---	---	---	Low	High	Low
Rc:							
Razor	20-40	Bedrock (paralithic)	---	Very weakly cemented	Low	High	High
Sc:							
Satanta	---	---	---	---	Moderate	Low	Low
Se:							
Sweetwater	---	---	---	---	None	High	Low
Ua:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
Ub:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
Uc:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
Us:							
Ulysses	---	---	---	---	Moderate	Moderate	Low
Colby	---	---	---	---	Low	Low	Low
W:							
Water	---	---	---	---	---	---	---

WATER MANAGEMENT
Wallace County, Kansas

The soils of the survey area are rated in the Water Management table according to limitations that affect their suitability for water management. Soils are rated for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways. Restrictive features that affect each soil for the specified use is also provided in the table.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Moderately limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Limited indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but generally require special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate to high maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Limitation class terms, such as very limited or limited, etc., limitation ratings, and numerical ratings are shown for each soil feature listed. As many as three soil features may be listed for each soil component if applicable. The overall limitation rating for the soil component is based on the most severe limitation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorablecompaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects theamount of usable material. It also affects traffic ability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditch banks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a very limited hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, which conduct surface water to outlets at a non-erosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
063GB:				
Glenberg	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
Bankard	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: rooting depth too arid droughty
063KM:				
Kimst	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid
063KR:				
Kuma	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Keith	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
109EB:				
Elkader	Limitation: deep to water	Limitation: excess salt	Limitation: erodes easily	Limitation: erodes easily too arid
109EC:				
Elkader	Limitation: deep to water	Limitation: excess salt slope	Limitation: erodes easily	Limitation: erodes easily too arid
181RH:				
Kim	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Otero	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing	Limitation: slope too arid droughty
181UC:				
Ulysses	Limitation: deep to water	Limitation: slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
181UD:				
Ulysses	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
Colby	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid
Bb:				
Bankard	Limitation: deep to water	Limitation: fast intake soil blowing droughty	Limitation: too sandy soil blowing	Limitation: rooting depth too arid droughty
Bc:				
Bankard	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
Bo:				
Bridgeport	Limitation: deep to water	Limitation: flooding	Limitation: erodes easily	Limitation: erodes easily
Bp:				
Bridgeport	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Br:				
Bridgeport	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily
Bs:				
Bridgeport	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Arvada	Limitation: deep to water	Limitation: excess sodium percs slowly droughty	Limitation: erodes easily	Limitation: excess sodium excess salt too arid
Cd:				
Canyon	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope too arid depth to rock
Ch:				
Caruso	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
Co:				
Colby	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily	Limitation: erodes easily too arid

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
COC:				
Colby	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Cp:				
Colby	Limitation: deep to water	Limitation: erodes easily slope	Limitation: erodes easily slope	Limitation: erodes easily slope too arid
Ec:				
Elkader	Limitation: deep to water	Limitation: excess salt slope	Limitation: erodes easily	Limitation: erodes easily too arid
Gb:				
Glenberg	Limitation: deep to water	Limitation: soil blowing droughty	Limitation: too sandy soil blowing	Limitation: too arid droughty
Go:				
Goshen	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Ke:				
Keith	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
Ko:				
Kim	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope too arid
Otero	Limitation: deep to water	Limitation: slope soil blowing droughty	Limitation: slope soil blowing	Limitation: slope too arid droughty
Ku:				
Kuma	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily
Lm:				
Limon	Limitation: deep to water	Limitation: excess salt percs slowly slow intake	Limitation: percs slowly	Limitation: excess salt percs slowly too arid
Mc:				
Manter	Limitation: deep to water	Limitation: slope soil blowing	Limitation: too sandy soil blowing	Limitation: too arid
Mh:				
Midway	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: erodes easily slope depth to rock	Limitation: erodes easily slope too arid
Po:				
Pleasant	Limitation: percs slowly	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily percs slowly wetness	Limitation: erodes easily wetness too arid
Rc:				
Razor	Limitation: deep to water	Limitation: percs slowly slope slow intake	Limitation: erodes easily percs slowly depth to rock	Limitation: erodes easily too arid depth to rock
Sc:				
Satanta	Limitation: deep to water	Favorable	Favorable	Limitation: too arid
Se:				
Sweetwater	Limitation: flooding cutbanks cave	Limitation: flooding wetness	Limitation: too sandy wetness	Limitation: wetness
Ua:				
Ulysses	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
Ub:				
Ulysses	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
Uc:				
Ulysses	Limitation: deep to water	Limitation: slope	Limitation: erodes easily	Limitation: erodes easily too arid
Us:				
Ulysses	Limitation: deep to water	Favorable	Limitation: erodes easily	Limitation: erodes easily too arid
Colby	Limitation: deep to water	Limitation: erodes easily	Limitation: erodes easily	Limitation: erodes easily too arid

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Features affecting--			
	Drainage	Irrigation	Terraces and diversions	Grassed waterways
W: Water----------	---	---	---	---

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer-fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.36	Very limited Deep to water	1.00
Bankard	30	Very limited Seepage	1.00	Somewhat limited Seepage	1.00	Very limited Deep to water	1.00
063KM:							
Kimst	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
063KR:							
Kuma	45	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Deep to water	1.00
Keith	30	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
109EB:							
Elkader	100	Somewhat limited Seepage	0.70	Somewhat limited Piping Salinity	0.76 0.03	Very limited Deep to water	1.00
109EC:							
Elkader	100	Somewhat limited Seepage	0.70	Somewhat limited Piping Salinity	0.76 0.03	Very limited Deep to water	1.00
181RH:							
Kim	70	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Deep to water	1.00
Otero	30	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.09	Very limited Deep to water	1.00
181UC:							
Ulysses	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.95	Very limited Deep to water	1.00
181UD:							
Ulysses	60	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Colby	40	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Deep to water	1.00
Bb:							
Bankard	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.49	Very limited Deep to water	1.00
Bc:							
Bankard	100	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Deep to water	1.00
Bo:							
Bridgeport	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.73	Very limited Deep to water	1.00
Bp:							
Bridgeport	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.70	Very limited Deep to water	1.00
Br:							
Bridgeport	100	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.70	Very limited Deep to water	1.00
Bs:							
Bridgeport	55	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.68	Very limited Deep to water	1.00
Arvada	45	Somewhat limited Seepage	0.70	Somewhat limited Piping Salinity	0.64 0.12	Very limited Deep to water	1.00
Cd:							
Canyon	100	Very limited Seepage Depth to bedrock	1.00 0.69	Very limited Thin layer Piping	1.00 1.00	Very limited Deep to water	1.00

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer-fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Slope	0.08				
Ch:							
Caruso	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.57	Piping	0.88	Slow refill	0.43
				Depth to saturated zone	0.86	Cutbanks cave	0.10
						Deep to water	0.06
Co:							
Colby	100	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Deep to water	1.00
COC:							
Colby	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Deep to water	1.00
Cp:							
Colby	100	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Deep to water	1.00
		Slope	0.00				
Ec:							
Elkader	100	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.76	Deep to water	1.00
				Salinity	0.03		
Gb:							
Glenberg	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.09	Deep to water	1.00
Go:							
Goshen	100	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.90	Deep to water	1.00
Ke:							
Keith	100	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Deep to water	1.00
Ko:							
Kim	70	Somewhat limited		Very limited		Very limited	
		Seepage	0.70	Piping	1.00	Deep to water	1.00
		Slope	0.01				
Otero	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.09	Deep to water	1.00
		Slope	0.01				
Ku:							
Kuma	100	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.70	Piping	0.99	Deep to water	1.00
Lm:							
Limon	100	Not limited		Not limited		Very limited	
						Deep to water	1.00
Mc:							
Manter	100	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.09	Deep to water	1.00
Mh:							
Midway	100	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Deep to water	1.00
		Depth to bedrock	0.78				
		Slope	0.01				
Po:							
Pleasant	100	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.70	Ponding	1.00	Slow refill	0.30
				Depth to saturated zone	1.00	Cutbanks cave	0.10
Rc:							
Razor	100	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.08	Piping	1.00	Deep to water	1.00
				Thin layer	0.81		
				Salinity	0.50		
Sc:							
Satanta	100	Somewhat limited		Somewhat limited		Very limited	

WATER MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Pond Reservoir Area		Embankments, Dikes, and Levees		Excavated Ponds (Aquifer-fed)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
		Seepage	0.70	Piping	0.97	Deep to water	1.00
Se:							
Sweetwater	100	Very limited Seepage	 1.00	Very limited Depth to saturated zone Seepage	 1.00 0.46	Very limited Cutbanks cave	 1.00
Ua:							
Ulysses	100	Somewhat limited Seepage	 0.70	Very limited Piping	 1.00	Very limited Deep to water	 1.00
Ub:							
Ulysses	100	Somewhat limited Seepage	 0.70	Somewhat limited Piping	 0.91	Very limited Deep to water	 1.00
Uc:							
Ulysses	100	Somewhat limited Seepage	 0.70	Very limited Piping	 1.00	Very limited Deep to water	 1.00
Us:							
Ulysses	65	Somewhat limited Seepage	 0.70	Very limited Piping	 1.00	Very limited Deep to water	 1.00
Colby	35	Somewhat limited Seepage	 0.70	Very limited Piping	 1.00	Very limited Deep to water	 1.00
W:							
Water	100	Very limited Seepage Slope	 1.00 0.50	Very limited Hard to pack	 1.00	Very limited Deep to water	 1.00

SANITARY FACILITIES
Wallace County, Kansas

Sanitary Facilities

The following tables show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A trench sanitary landfill is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

SANITARY FACILITIES
Wallace County, Kansas

In an area sanitary landfill, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

SANITARY FACILITIES--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:					
Glenberg	50	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40
				Slope	0.00
Bankard	30	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
063KM:					
Kimst	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.09
063KR:					
Kuma	45	Somewhat limited		Very limited	
		Restricted permeability	0.50	Seepage	1.00
Keith	30	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
109EB:					
Elkader	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.00
109EC:					
Elkader	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.33
181RH:					
Kim	70	Somewhat limited		Very limited	
		Slope	0.84	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Otero	30	Somewhat limited		Very limited	
		Slope	0.84	Seepage	1.00
				Slope	1.00
181UC:					
Ulysses	100	Somewhat limited		Very limited	
		Restricted permeability	0.50	Slope	1.00
		Slope	0.00	Seepage	0.50
181UD:					
Ulysses	60	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.00
Colby	40	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.00
Bb:					
Bankard	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Filtering capacity	1.00	Seepage	1.00
Bc:					
Bankard	100	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Flooding	0.40	Flooding	0.40
Bo:					
Bridgeport	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	0.50	Seepage	0.50
Bp:					
Bridgeport	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
Br:					
Bridgeport	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.33

SANITARY FACILITIES--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Bs:					
Bridgeport	55	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
Arvada	45	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
Cd:					
Canyon	100	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
				Seepage	0.50
Ch:					
Caruso	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.68	Seepage	0.32
Co:					
Colby	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Slope	0.67
				Seepage	0.50
COC:					
Colby	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.33
Cp:					
Colby	100	Somewhat limited		Very limited	
		Restricted permeability	0.50	Slope	1.00
		Slope	0.37	Seepage	0.50
Ec:					
Elkader	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.33
Gb:					
Glenberg	100	Somewhat limited		Very limited	
		Flooding	0.40	Seepage	1.00
				Flooding	0.40
Go:					
Goshen	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
		Flooding	0.40	Flooding	0.40
Ke:					
Keith	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
Ko:					
Kim	70	Somewhat limited		Very limited	
		Slope	0.84	Slope	1.00
		Restricted permeability	0.50	Seepage	0.50
Otero	30	Somewhat limited		Very limited	
		Slope	0.84	Seepage	1.00
				Slope	1.00
Ku:					
Kuma	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
Lm:					
Limon	100	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40		
Mc:					
Manter	100	Not limited		Very limited	
				Seepage	1.00
				Slope	0.33
Mh:					
Midway	100	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00

SANITARY FACILITIES--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
		Slope	0.84	Slope	1.00
Po:					
Pleasant	100	Very limited		Very limited	
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.50
Rc:					
Razor	100	Very limited		Very limited	
		Restricted permeability	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	0.33
Sc:					
Satanta	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.00
Se:					
Sweetwater	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
Ua:					
Ulysses	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
Ub:					
Ulysses	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.00
Uc:					
Ulysses	100	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Slope	0.67
				Seepage	0.50
Us:					
Ulysses	65	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.09
Colby	35	Somewhat limited		Somewhat limited	
		Restricted permeability	0.50	Seepage	0.50
				Slope	0.09
W:					
Water	100	Very limited		Very limited	
		Slope	1.00	Slope	1.00

SANITARY FACILITIES--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Very limited		Somewhat limited		Very limited	
		Too Sandy	1.00	Flooding	0.40	Seepage	1.00
		Flooding	0.40			Too Sandy	0.50
Bankard	30	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
063KM:							
Kimst	85	Not limited		Not limited		Not limited	
063KR:							
Kuma	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Seepage	1.00	Seepage	0.21
Keith	30	Not limited		Not limited		Not limited	
109EB:							
Elkader	100	Not limited		Not limited		Not limited	
109EC:							
Elkader	100	Not limited		Not limited		Not limited	
181RH:							
Kim	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
Otero	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
						Seepage	0.50
181UC:							
Ulysses	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.00	Slope	0.00	Slope	0.00
181UD:							
Ulysses	60	Not limited		Not limited		Not limited	
Colby	40	Not limited		Not limited		Not limited	
Bb:							
Bankard	100	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Too Sandy	1.00
		Too Sandy	1.00			Seepage	1.00
Bc:							
Bankard	100	Very limited		Somewhat limited		Very limited	
		Too Sandy	1.00	Flooding	0.40	Too Sandy	1.00
		Flooding	0.40			Seepage	1.00
Bo:							
Bridgeport	100	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
Bp:							
Bridgeport	100	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
Br:							
Bridgeport	100	Not limited		Not limited		Not limited	
Bs:							
Bridgeport	55	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
Arvada	45	Somewhat limited		Somewhat limited		Not limited	
		Flooding	0.40	Flooding	0.40		
Cd:							
Canyon	100	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00	Depth to bedrock	1.00
		Slope	1.00			Slope	1.00
Ch:							
Caruso	100	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.47
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
Co:							
Colby	100	Not limited		Not limited		Not limited	
COC:							
Colby	85	Not limited		Not limited		Not limited	
Cp:							
Colby	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
Ec:							
Elkader	100	Not limited		Not limited		Not limited	
Gb:							
Glenberg	100	Very limited		Somewhat limited		Somewhat limited	
		Too Sandy	1.00	Flooding	0.40	Seepage	0.50
		Flooding	0.40			Too Sandy	0.50
Go:							
Goshen	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
Ke:							
Keith	100	Not limited		Not limited		Not limited	
Ko:							
Kim	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84

SANITARY FACILITIES--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Otero	30	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Seepage	0.84 0.50
Ku: Kuma	100	Not limited		Not limited		Not limited	
Lm: Limon	100	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Hard to compact	1.00
Mc: Manter	100	Not limited		Not limited		Somewhat limited Seepage	0.50
Mh: Midway	100	Very limited Depth to bedrock Slope	1.00 0.84	Somewhat limited Slope	0.84	Very limited Depth to bedrock Slope	1.00 0.84
Po: Pleasant	100	Very limited Depth to saturated zone Ponding Too clayey	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00 1.00
Rc: Razor	100	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock Hard to compact	1.00 1.00
Sc: Satanta	100	Not limited		Not limited		Not limited	
Se: Sweetwater	100	Very limited Flooding Depth to saturated zone Seepage Too Sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Seepage Depth to saturated zone Too Sandy	1.00 0.96 0.50
Ua: Ulysses	100	Not limited		Not limited		Not limited	
Ub: Ulysses	100	Not limited		Not limited		Not limited	
Uc: Ulysses	100	Not limited		Not limited		Not limited	
Us: Ulysses	65	Not limited		Not limited		Not limited	
Colby	35	Not limited		Not limited		Not limited	
W: Water	100	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

AGRICULTURAL WASTE MANAGEMENT
Wallace County, Kansas

The nature of the soil is also important in the application of organic wastes and wastewater to land as fertilizers and irrigation; it is also important when the soil is used as a medium for treatment and disposal of these wastes. Favorable soil properties are required to prevent environmental damage.

The use of organic wastes and wastewater as production resources will result in energy conservation, prevent the waste of these important resources, and prevent problems associated with their disposal. Where disposal is the goal, and a maximum amount is disposed in a minimum area to hold costs to a minimum, risk of environmental damage is the principal constraint. Where the reuse goal is pursued, and a minimum amount is applied to a maximum area to obtain the greatest benefit, environmental damage is unlikely.

Interpretations developed for waste management may include ratings for (1) manure and food processing wastes; (2) municipal sewage sludge; (3) irrigation use of wastewater; or (4) treatment of wastewater by the slow rate process, overland flow process, or rapid infiltration process. If available, these should be located in this subsection.

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

The Ag-Waste tables show the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of these tables, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, phosphorus, heavy metals, and salts are not added in excessive amounts.

The ratings in the tables are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater by irrigation)and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (overland flow of wastewater, rapid infiltration of wastewater, and slow rate treatment of wastewater).

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect agricultural waste management. Not limited indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. Slightly limited indicates that the soil has features that are generally favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. Somewhat limited indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. Very limited indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density.The wind erodibility group, the soil erodibility factor K, and slope are consideredin estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

Application of sewage sludge not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

AGRICULTURAL WASTE MANAGEMENT
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The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge. Permanently frozen soils are unsuitable for waste treatment.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding.

The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

See the National Soil Handbook, September 1992, Part 620, for criteria used in rating soils for sanitary facilities and waste management.

AGRICULTURAL WASTE MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
063GB:							
Glenberg	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Filtering capacity	0.00	Flooding	0.40	Filtering capacity	0.00
				Filtering capacity	0.00		
Bankard	30	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Droughty	0.65	Flooding	1.00	Droughty	0.65
		Flooding	0.60	Droughty	0.65	Flooding	0.60
		Leaching limitation	0.45				
063KM:							
Kimst	85	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.00
063KR:							
Kuma	45	Not limited		Not limited		Not limited	
Keith	30	Not limited		Not limited		Not limited	
109EB:							
Elkader	100	Not limited		Not limited		Not limited	
109EC:							
Elkader	100	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.08
181RH:							
Kim	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
						Too steep for sprinkler application	0.89
Otero	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
		Filtering capacity	0.00	Filtering capacity	0.00	Too steep for sprinkler application	0.89
						Filtering capacity	0.00
181UC:							
Ulysses	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.00	Slope	0.00	Too steep for surface application	1.00
						Too steep for sprinkler application	0.10
181UD:							
Ulysses	60	Not limited		Not limited		Not limited	
Colby	40	Not limited		Not limited		Not limited	
Bb:							
Bankard	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Flooding	0.60	Flooding	1.00	Flooding	0.60
		Leaching limitation	0.45				
Bc:							
Bankard	100	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Filtering capacity	1.00
		Leaching limitation	0.45	Droughty	0.42	Droughty	0.42
		Droughty	0.42	Flooding	0.40		
Bo:							
Bridgeport	100	Somewhat limited		Very limited		Somewhat limited	
		Flooding	0.60	Flooding	1.00	Flooding	0.60
Bp:							
Bridgeport	100	Not limited		Somewhat limited		Not limited	
				Flooding	0.40		
Br:							
Bridgeport	100	Not limited		Not limited		Somewhat limited	

AGRICULTURAL WASTE MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
						Too steep for surface application	0.08
Bs:							
Bridgeport----------	55	Not limited		Somewhat limited		Not limited	
				Flooding	0.40		
Arvada--------------	45	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	0.50	Salinity	1.00	Salinity	1.00
		Runoff limitation	0.40	Flooding	0.40		
Cd:							
Canyon--------------	100	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Too steep for surface application	1.00
		Runoff limitation	0.40			Too steep for sprinkler application	1.00
Ch:							
Caruso--------------	100	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.86	Flooding	1.00	Depth to saturated zone	0.86
		Flooding	0.60	Depth to saturated zone	0.86	Flooding	0.60
Co:							
Colby----------	100	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.31
COC:							
Colby----------	85	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.08
Cp:							
Colby----------	100	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Too steep for surface application	1.00
						Too steep for sprinkler application	0.59
Ec:							
Elkader----------	100	Somewhat limited		Not limited		Somewhat limited	
		Salinity	0.35			Too steep for surface application	0.08
Gb:							
Glenberg----------	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Filtering capacity	0.00	Flooding	0.40	Filtering capacity	0.00
				Filtering capacity	0.00		
Go:							
Goshen--------------	100	Not limited		Somewhat limited		Not limited	
				Flooding	0.40		
Ke:							
Keith----------	100	Not limited		Not limited		Not limited	
Ko:							
Kim----------	70	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
						Too steep for sprinkler application	0.89
Otero----------	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
		Filtering capacity	0.00	Filtering capacity	0.00	Too steep for sprinkler application	0.89
						Filtering capacity	0.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ku:							
Kuma	100	Not limited		Not limited		Not limited	
Lm:							
Limon	100	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Salinity	0.01	Flooding	0.40	Salinity	0.13
				Salinity	0.13		
Mc:							
Manter	100	Somewhat limited		Somewhat limited		Somewhat limited	
		Filtering capacity	0.00	Filtering capacity	0.00	Too steep for surface application	0.08
						Filtering capacity	0.00
Mh:							
Midway	100	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Droughty	1.00	Droughty	1.00
		Droughty	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Slope	0.84	Slope	0.84	Too steep for surface application	1.00
		Runoff limitation	0.40			Too steep for sprinkler application	0.89
Po:							
Pleasant	100	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Runoff limitation	0.40				
Rc:							
Razor	100	Very limited		Very limited		Very limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
		Depth to bedrock	0.29	Depth to bedrock	0.29	Depth to bedrock	0.29
		Sodium content	0.08	Sodium content	0.08	Sodium content	0.08
		Droughty	0.05	Droughty	0.05	Too steep for surface application	0.08
						Droughty	0.05
Sc:							
Satanta	100	Not limited		Not limited		Not limited	
Se:							
Sweetwater	100	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Depth to saturated zone	1.00	Filtering capacity	1.00
		Flooding	0.60	Filtering capacity	1.00	Flooding	0.60
		Runoff limitation	0.40	Restricted permeability	0.22	Restricted permeability	0.22
		Restricted permeability	0.30				
Ua:							
Ulysses	100	Not limited		Not limited		Not limited	
Ub:							
Ulysses	100	Not limited		Not limited		Not limited	
Uc:							
Ulysses	100	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.31
Us:							
Ulysses	65	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.00
Colby	35	Not limited		Not limited		Somewhat limited	
						Too steep for surface application	0.00

AGRICULTURAL WASTE MANAGEMENT--Continued
Wallace County, Kansas

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct of map unit	Application of manure and food-processing waste		Application of sewage sludge		Disposal of wastewater by irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
W:							
Water	100	Very limited		Very limited		Very limited	
		Slope	1.00	Low adsorption	1.00	Low adsorption	1.00
		Low adsorption	1.00	Slope	1.00	Too steep for surface application	1.00
						Too steep for sprinkler application	1.00

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Wallace County, Kansas: KS199

						SPISP II Ratings		
MUSYM/SEQ#	COMPONENT/TEXTURE/MU%	HYD	KFACT	SURFACE DEPTH	% OM	Leaching (SLP)	Solution Runoff (SSRP)	Adsorbed Runoff (SARP)
109EB 1	ELKADER SIL 100%	B	0.32	15"	2.0%	I	I	I
181UC 1	ULYSSES SIL 100%	B	0.32	10"	2.0%	I	I	I
181UD 1	ULYSSES SIL 60%	B	0.32	11"	2.0%	I	I	I
181UD 2	COLBY SIL 40%	B	0.43	4"	1.3%	H	I	I
Bb 1	BANKARD LS 100%	A	0.17	5"	0.8%	H	L	L
Bc 1	BANKARD SL 100%	A	0.24	5"	1.5%	H	L	L
Bo 1	BRIDGEPORT L 100%	B	0.32	16"	2.5%	I	I	I
Bp 1	BRIDGEPORT SIL 100%	B	0.32	13"	2.5%	I	I	I
Br 1	BRIDGEPORT SIL 100%	B	0.32	12"	2.5%	I	I	I
Bs 1	BRIDGEPORT SIL 55%	B	0.32	6"	2.5%	I	I	I
Bs 2	ARVADA L 45%	D	0.32	2"	2.0%	V	H	H
Cd 1	CANYON L 100%	D	0.32	4"	0.8%	V	H	H (s)
Ch 1	CARUSO L 100%	C	0.28	16"	2.5%	H (w)	H	H
Co 1	COLBY SIL 100%	B	0.43	5"	1.3%	H	I	I
Cp 1	COLBY SIL 100%	B	0.43	5"	1.3%	H	I	I
Ec 1	ELKADER SIL 100%	B	0.32	10"	2.0%	I	I	I
Gb 1	GLENBERG SL 100%	B	0.24	30"	0.8%	I	I	I
Go 1	GOSHEN SIL 100%	B	0.32	16"	2.0%	I	I	I
Ke 1	KEITH SIL 100%	B	0.32	9"	2.0%	I	I	I
Ko 1	KIM L 70%	B	0.32	6"	0.8%	H	I	H (s)
Ko 2	OTERO SL 30%	B	0.24	5"	1.3%	H	I	H (s)
Ku 1	KUMA SIL 100%	B	0.32	8"	3.0%	I	I	I
Lm 1	LIMON SIC 100%	C	0.24	4"	0.8%	I	H	H
Mc 1	MANTER FSL 100%	B	0.20	16"	3.0%	L	I	I
Mh 1	MIDWAY C 100%	D	0.37	4"	1.3%	V	H	H (s)
Po 1	PLEASANT SICL 100%	D	0.37	10"	3.5%	H (w)	H	H
Rc 1	RAZOR C 100%	C	0.37	6"	1.3%	L	H	H
Sc 1	SATANTA L 100%	B	0.28	12"	1.5%	I	I	I

WIN-PST SPISP II
SOIL SENSITIVITY TO PESTICIDE LOSS RATING REPORT

Soils Data Table: SOIL_KS Sort Order: MUSYM

Wallace County, Kansas: KS199

Se 1	SWEETWATER CL 100%	D	0.28	24"	2.5% H (w)	H	H
Ua 1	ULYSSES SIL 100%	B	0.32	10"	2.0% I	I	I
Ub 1	ULYSSES SIL 100%	B	0.32	10"	1.5% I	I	I
Uc 1	ULYSSES SIL 100%	B	0.32	10"	2.0% I	I	I
Us 1	ULYSSES SIL 65%	B	0.32	10"	2.0% I	I	I
Us 2	COLBY L 35%	B	0.43	4"	1.3% H	I	I

(.\REPORTS\SOILS.TXT generated on 12/12/01 at 12:11:15)

H -- High
I -- Intermediate
L -- Low
V -- Very Low

Conditions that affect ratings:
    m   -- There are macropores in the surface horizon deeper than 24"
    w   -- The high water table comes within 24" of the surface during the growing season
    s   -- The field slope is greater than 15%

SPISP II S-Ratings:
   SLP   -- Soil Leaching Potential
   SSRP -- Soil Solution Runoff Potential
   SARP -- Soil Adsorbed Runoff Potential

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Wallace County, Kansas

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and "Keys to Soil Taxonomy"' (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at east one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Wallace County, Kansas

All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
063GB:							
GLENBERG, RARELY FLOODED-BANKARD, OCCASIONALLY FLOODED, COMPLEX, 0 TO 3 PERCENT SLOPES	GLENBERG	No	flood plain	---	---	---	---
	BANKARD	No	flood plain	---	---	---	---
	SAMPSON	No	drainageway	---	---	---	---
	HAVERSON	No	flood plain	---	---	---	---
	PAOLI	No	terrace	---	---	---	---
063KM:							
KIMST LOAM, 1 TO 5 PERCENT SLOPES	KIMST	No	hill	---	---	---	---
	OTERO	No	hillslope	---	---	---	---
	STONEHAM	No	plain	---	---	---	---
	FORT COLLINS	No	plain	---	---	---	---
	LODGEPOLE	Yes	depression	2A,3	YES	NO	YES
063KR:							
KUMA-KEITH SILT LOAMS, 0 TO 2 PERCENT SLOPES	KUMA	No	plain	---	---	---	---
	KEITH	No	plain	---	---	---	---
	RICHFIELD	No	plain	---	---	---	---
	GOSHEN	No	drainageway	---	---	---	---
	NORKA	No	plain	---	---	---	---
	PLEASANT	No	depression	---	---	---	---
	LODGEPOLE	Yes	depression	2A,3	YES	NO	YES
109EB:							
ELKADER SILT LOAM, 1 TO 3 PERCENT SLOPES	ELKADER	No	fan	---	---	---	---
109EC:							
ELKADER SILT LOAM, 3 TO 5 PERCENT SLOPES	ELKADER	No	hillslope	---	---	---	---
181RH:							
KIM-OTERO COMPLEX, 6 TO 25 PERCENT SLOPES	KIM	No	hillslope	---	---	---	---
	OTERO	No	hillslope	---	---	---	---
	UNNAMED HYDRIC SOILS	---	---	---	---	---	---
181UC:							
ULYSSES SILT LOAM, 6 TO 10 PERCENT SLOPES	ULYSSES	No	hillslope	---	---	---	---
181UD:							
ULYSSES-COLBY SILT LOAMS, 1 TO 3 PERCENT SLOPES, ERODED	ULYSSES	No	ridge	---	---	---	---
	COLBY	No	knoll	---	---	---	---
Bb:							
BANKARD LOAMY SAND, OCCASIONALLY FLOODED	BANKARD	No	flood plain	---	---	---	---
Bc:							
BANKARD SANDY LOAM, RARELY FLOODED	BANKARD	No	flood plain	---	---	---	---
Bo:							
BRIDGEPORT LOAM, OCCASIONALLY FLOODED	BRIDGEPORT	No	flood plain	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	flood plain	2B3	YES	NO	NO
Bp:							
BRIDGEPORT SILT LOAM, 0 TO 2 PERCENT SLOPES, RARELY FLOODED	BRIDGEPORT	No	flood plain	---	---	---	---
Br:							
BRIDGEPORT SILT LOAM, 2 TO 6 PERCENT SLOPES	BRIDGEPORT	No	alluvial fan	---	---	---	---
Bs:							
BRIDGEPORT-ARVADA COMPLEX, RARELY FLOODED	BRIDGEPORT	No	flood plain	---	---	---	---
	ARVADA	No	flood plain	---	---	---	---
Cd:							
CANYON LOAM, 5 TO 30 PERCENT SLOPES	CANYON	No	hillslope	---	---	---	---
	UNNAMED HYDRIC SOILS	Yes	drainageway	2A	YES	NO	NO
Ch:							
CARUSO LOAM, OCCASIONALLY FLOODED	CARUSO	No	flood plain	---	---	---	---
	SWEETWATER	Yes	flood plain	2B3	YES	NO	NO
Co:							
COLBY SILT LOAM, 3 TO 6 PERCENT SLOPES	COLBY	No	hillslope	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Wallace County, Kansas

All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
COC:							
COLBY SILT LOAM, 3 TO 5 PERCENT SLOPES	COLBY	No	hill	---	---	---	---
	NORKA	No	plain	---	---	---	---
	RICHFIELD	No	plain	---	---	---	---
	WILEY	No	plain	---	---	---	---
Cp:							
COLBY SILT LOAM, 6 TO 15 PERCENT SLOPES	COLBY	No	hillslope	---	---	---	---
Ec:							
ELKADER SILT LOAM, 2 TO 6 PERCENT SLOPES	ELKADER	No	fan	---	---	---	---
Gb:							
GLENBERG SANDY LOAM, RARELY FLOODED	GLENBERG	No	terrace	---	---	---	---
Go:							
GOSHEN SILT LOAM, 0 TO 3 PERCENT SLOPES, RARELY FLOODED	GOSHEN	No	drainageway, swale	---	---	---	---
	PLEASANT	Yes	depression	2A	YES	NO	NO
Ke:							
KEITH SILT LOAM, 0 TO 1 PERCENT SLOPES	KEITH	No	plain	---	---	---	---
	PLEASANT	Yes	depression	3	NO	NO	YES
Ko:							
KIM-OTERO COMPLEX, 5 TO 20 PERCENT SLOPES	KIM	No	hillslope	---	---	---	---
	OTERO	No	hillslope	---	---	---	---
	UNNAMED HYDRIC SOILS	---	---	---	---	---	---
Ku:							
KUMA SILT LOAM, 0 TO 1 PERCENT SLOPES	KUMA	No	flat	---	---	---	---
	PLEASANT	Yes	depression	3	NO	NO	YES
Lm:							
LIMON SILTY CLAY, 0 TO 2 PERCENT SLOPES	LIMON	No	terrace	---	---	---	---
Mc:							
MANTER FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	MANTER	No	plain	---	---	---	---
Mh:							
MIDWAY CLAY, 5 TO 20 PERCENT SLOPES	MIDWAY	No	hillslope	---	---	---	---
Po:							
PLEASANT SILTY CLAY LOAM, 0 TO 1 PERCENT SLOPES	PLEASANT	Yes	playa	3	NO	NO	YES
Rc:							
RAZOR CLAY, 1 TO 6 PERCENT SLOPES	RAZOR	No	hillslope	---	---	---	---
Sc:							
SATANTA LOAM, 1 TO 3 PERCENT SLOPES	SATANTA	No	paleoterrace, ridge	---	---	---	---
Se:							
SWEETWATER CLAY LOAM, OCCASIONALLY FLOODED	SWEETWATER	Yes	flood plain	2B3	YES	NO	NO
Ua:							
ULYSSES SILT LOAM, 0 TO 1 PERCENT SLOPES	ULYSSES	No	ridge	---	---	---	---
Ub:							
ULYSSES SILT LOAM, 1 TO 3 PERCENT SLOPES	ULYSSES	No	plain	---	---	---	---
Uc:							
ULYSSES SILT LOAM, 3 TO 6 PERCENT SLOPES	ULYSSES	No	hillslope	---	---	---	---
Us:							
ULYSSES-COLBY COMPLEX, 1 TO 4 PERCENT SLOPES	ULYSSES	No	ridge	---	---	---	---
	COLBY	No	plain	---	---	---	---
W:							
WATER	WATER	Unranked	---	---	---	---	---

HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Wallace County, Kansas

All mapunits are displayed regardless of hydric status and are listed in alpha-numeric order by mapunit symbol. The "Hydric Soils Criteria" columns indicate the conditions that caused the mapunit component to be classified as "Hydric" or "Non-Hydric". These criteria are defined in "Hydric Soils of the United States" (USDA Miscellaneous Publication No. 1491, June, 1991). See the "Criteria for Hydric Soils" endnote to determine the meaning of these columns. Spot symbols are footnoted at the end of the table.

Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.
Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:

   a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or

   b. poorly drained or very poorly drained and have either:

      (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in),

      or for other soils

      (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or

      (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or

3. Soils that are frequently ponded for long duration or very long duration during the growing season, or

4. Soils that are frequently flooded for long duration or very long duration during the growing season.